THE BUILDER

Incorporating

ARCHITECTURE & THE BRITISH ARCHITECT

THE BUILDER HOUSE, CATHERINE STREET, ALDWYCH, LONDON, W.C.2. Telephones: Temple Bar 6251-2-3-4

VOL. CLXXXII FEBRUARY 22, 1952 No. 5688

PRINCIPAL CONTENTS

ARTICLES	PAGE
THE COST OF BUILDING: Variations from 1914 to Date	285
BOOKS	286
HOUSES BUILT UNDER LICENSE	286
PRIVATE HOUSE BUILDING	287
FIRST REGIONAL HOUSING BOARDS	287
CORRESPONDENCE	287
CHURCH BUILDINGS: Problems of the New Housing Estates	297
REPAIR OF ANCIENT BUILDINGS: Course for Architects at York	297
REPAIRING OLD CHURCHES	297
HEAT INSULATION OF SMALL HOUSES	298
WHOLE-HOUSE HEATING	299
A PALLADIAN HOUSE	300
A SAXON ARCH AT HARLINGTON	300
THE INFLUENCE OF DESIGN ON PRODUCTIVITY	301
OBITUARY	303
PROTECTION FROM LIGHTNING	304
A RUBBER BRICK CORNICE	305
INQUIRY BUREAU	305
LOCAL AUTHORITY LOANS	306
WOOD PRESERVATION IN THE U.S.A.	306
VALUATIONS AND THE PLANNING ACT	307
NATIONAL FEDERATION	308
WAR DAMAGE PAYMENT	308
PROBLEMS OF TRAINING APPRENTICES	309
TENDERING DIFFICULTIES	309
HAULAGE COSTS CRITICISED	309
M.O.W. WINTER LECTURES	310
WATER UNDERTAKINGS AND STEEL	310
OFFICIAL NOTIFICATION	310
NEW COMPANIES	310
HUMAN RELATIONS IN INDUSTRY	310
NEWS IN BRIEF	311
ARCHITECTURE AND THE CINEMA	311
IN PARLIAMENT	311
TRADE NEWS	312
THE SCOTTISH BUILDER	312

ILLUSTRATIONS	
M.O.H. HEADQUARTERS, 23, SAVILE ROW, W.1: By W. Curtis Green, R.A., Son, and Lloyd	288
WAX POLISH FACTORY, WEST DRAYTON, MIDDX.: By C. Howard Crane	292

THIS WEEK'S NEWS

THE R.I.B.A. have stated that in view of the announcement made from Buckingham Palace that it is the Queen's wish that public dinners should take place as usual, it has been decided not to cancel or postpone the dinner fixed for March 20. p. 282

THE COUNCIL of the Royal Institute of British Architects have conferred the R.I.B.A. Distinction in Town Planning upon Mr. William Crabtree, A.R.I.B.A. p. 283

TWO CHARTS are published showing the rise in wages, materials and building costs over the years 1939 to 1952, and the fluctuations in wages and building costs from 1914 to date. Since 1939 the cost of building has increased by about 227 per cent. In the same period, wages have increased by about 125 per cent., and the price of materials by 165 per cent. p. 285

THE MINISTER OF HOUSING AND LOCAL GOVERNMENT has made five suggestions to help local authorities speed the building of houses under licence. p. 286

THE FIRST two regional housing production boards have been set up. They are for the south-western and north-western regions. p. 287

ONE OF THE FIRST reinforced concrete-framed buildings to be constructed with a new system of prefabricated welded reinforcement is illustrated on p. 292

THAT WHOLE-HOUSE HEATING is appropriate only for a small proportion of the prospective tenants of local-authority housing, is a view expressed in a paper presented jointly by Mr. F. C. Lant and Dr. J. C. Weston at a recent meeting of the Institute of Fuel. p. 299

THE COST OF BUILDING

SINCE 1939 the cost of building has increased about three and a quarter times or 227 per cent. In the same period wages have increased by about 125 per cent., and the price of materials by 165 per cent. These facts are shown by the charts published elsewhere in this issue; prepared by a leading quantity surveyor, the charts are based on experience of contracts of every type, and must therefore be taken as representing a fair sample.

These charts should give the building industry food for very serious thought. Although the increases in wages and prices are such that a substantial rise in building costs was inevitable, reference to the charts will show that the line for building costs has throughout this period of twelve and a half years been consistently above the lines for wages and prices. There are, in fact, four distinct phases:—

(1) A period of rapidly rising costs from the outbreak of war until about the end of 1941.

(2) A stage during 1942 when costs fell slightly, although wages and prices continued to advance; no doubt, the slackening in urgent war damage repairs had some influence here.

(3) A long period of increase in costs, prices and wages from about the end of 1942 to mid-1950.

(4) A period of sharp increase which was particularly marked during 1951; this increase was so great that the gap between costs on the one hand and wages and prices on the other is greater now than at any time during the period under review. A factor in this has undoubtedly been the steep increase in the cost of builders' transport, equipment and plant.

What lessons may be learned from these sombre facts? The first is, we think, that the situation is much more serious than is generally recognised. It is clear that the introduction of incentives has not had the desired effect in reducing costs: there was no marked narrowing of the gap in 1948 and 1949 when the incentives scheme was getting under way, and these were probably the best years from the point of view of materials supplies. This means that, even if the incentives scheme has increased actual production, it has effected no reduction in costs.

The charts suggest, moreover, that it will hardly do to put blame mainly on the late Government's policy of making the local authority the main agency for housebuilding. Although we have no doubt that greater freedom for private enterprise would help to bring down costs, it has to be remembered that these charts are based on all types of contract. The trouble, whatever it is, goes deeper than that. It has also to be remembered that private housebuilding after the first war did not get going on any large scale until after the sharp drop in building wages in 1921. Conditions before then were summed up by the Departmental Committee on the High Cost of Building Working-class Dwellings in these words:—

"The competitive spirit of the building trade had largely disappeared. Work would only be undertaken upon conditions whereby the builder was safeguarded against possible increases in the cost of labour, materials, railway freights, and upon terms which insured him against all other possible contingencies."

The 1944 report on Private Enterprise Housebuilding added this comment:—

"An abundance of work on these conditions was on offer by local authorities, and it was but natural that the builders preferred to take this work than to undertake private work which in its nature did not afford them the same safeguards and, in the case of building in anticipation of sale or letting, involved an exceptional degree of risk."

It is not likely that building trade wages will again fall as they did in 1921, but it may be the abandonment of rise-and-fall clauses would again have a salutary effect; at the very least it might encourage employers to resist more strongly the

claims put forward periodically for increases in wages other than those provided for by the cost-of-living sliding scale or by incentives schemes. It would be obviously stupid and unjust to put the whole blame for low production on the rise-and-fall clause in building contracts, but it seems likely that the existence of this and other protective devices has encouraged a "featherbed" mentality in building comparable to that fostered by guaranteed prices in agriculture. There is to-day too little financial incentive to overcome the difficulties which surround building, and this is shown by the fact that the report of the Commissioners for Inland Revenue for the year ended March 31, 1951, indicates that, in the building and civil engineering industry, dividends in 1949-50 were 1 per cent. of the total turnover, as compared with 2.5 per cent. in 1939-40. Clearly, then, the increased cost of building is not benefiting builders.

Builders are themselves aware of the situation and of the inherent danger to the community and to themselves. Speaking as President at the recent annual meeting of the National Federation of Building Trades Employers, Mr. Stephen Hudson said: "The cost of materials as well as wages has risen, and if we are not to price ourselves out of the market we must increase output and keep costs down. That our product is already too expensive for many building owners is clear from the increasing number who are carrying out building work for themselves. The writing is on the wall: we shall ignore it at our peril."

It is only fair to add that the obstacles to abandoning the rise-and-fall clause would be greater now than they were in 1921. Then costs were falling, but under the impact of rearmament and the steadily increasing cost of living there is little immediate prospect of the upward pressure on wages and prices coming to an end. But if the Government can, by budgetary and other economic measures, check the general upward rise in prices and wages, then it would not be unreasonable to abandon some of the protective provisions in building contracts, thus providing the financial discipline which seems necessary to awake a proper spirit of enterprise.

The abolition of the rise-and-fall clause would not of itself increase production and reduce the cost of building; other difficulties would still have to be tackled, but it could provide the necessary spur for overcoming those difficulties.

NOTES & NEWS

R.I.B.A. DINNER

BECAUSE of the death of the King, several inquiries have been received as to whether the R.I.B.A. dinner at Grosvenor House is still to be held.

In view, however, of the announcement made from Buckingham Palace that it is the Queen's wish that public dinners should take place as usual, it has been decided not to cancel or postpone the dinner fixed for March 20. Members of the R.I.B.A. are therefore urged to make early application for tickets for themselves and their guests.

P.R.I.B.A. TO VISIT CANADA

THE VISIT to Canada proposed by the President of the Royal Institute of British Architects next May is a most welcome move. There is no more loyal member of the Commonwealth than Canada, whose ties with Great Britain are close and affectionate. Architecturally, Canada has moved away from us (understandably so, perhaps, in that American constructional practice is followed so closely), and it is possible even that the Royal Architectural Institute of Canada, which became allied to the R.I.B.A. in 1909, may in recent years have felt itself a little remote from its parent body. The visit of Mr. Graham Henderson and Mrs. Henderson should do much to knit together the traditional ties. Accompanied by the Secretary (Mr. C. D. Spragg) they will visit Vancouver in May for the annual assembly of the R.A.I.C., and afterwards will go on to Washington to visit the American Institute of Architects. The whole architectural profession will unite in wishing them a happy and successful tour.

R.I.B.A. PRIZES, 1952-53

ON THE INVITATION of the President of the R.I.B.A., Mr. Howard V. Lobb, C.B.E., F.R.I.B.A., has undertaken to give the criticism of the drawings submitted in competition for the R.I.B.A. Prizes and Studentships, 1952-53.

Mr. Lobb's criticism will be delivered at a general meeting of the Institute to be held in February, 1953.

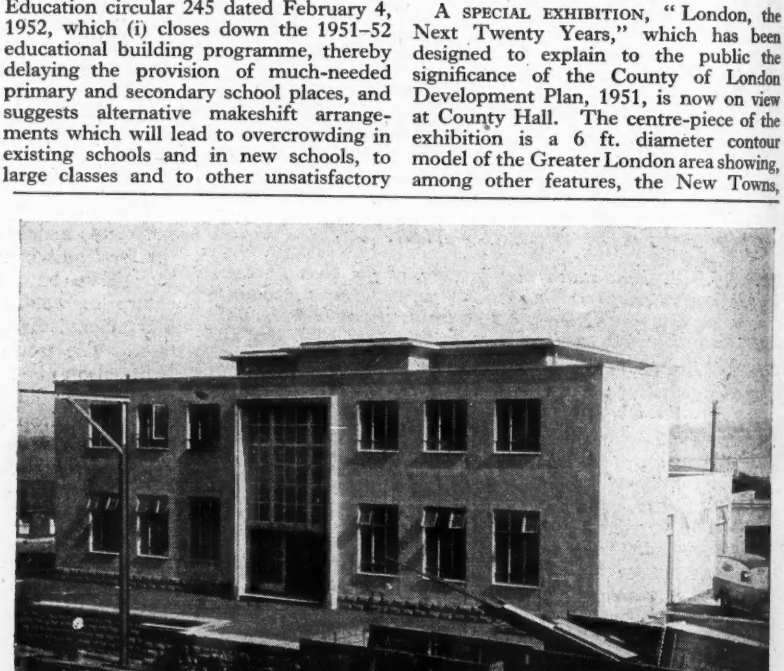
SCHOOL BUILDING CUTS

THE GOVERNMENT'S economic policy as it affects educational building was criticised, at a meeting of the London County Council on Tuesday, by Mr. R. McKinnon Wood, chairman of the council's education committee.

A motion by Mr. McKinnon Wood and by Mr. H. C. Shearman, vice-chairman of the committee, which was submitted to the council, stated: "That the council deplores the pronouncement on capital investment expressed in Ministry of Education circular 245 dated February 4, 1952, which (i) closes down the 1951–52 educational building programme, thereby delaying the provision of much-needed primary and secondary school places, and suggests alternative makeshift arrangements which will lead to overcrowding in existing schools and in new schools, to large classes and to other unsatisfactory arrangements for secondary education; and (ii) limits the development of playing fields; and that, in view of the urgency of the situation and the serious consequences to London education, the education committee and the general purposes committee be instructed forthwith and without further reference to the council to impress upon the Minister of Education, by deputation, the special needs of London . . ."

LONDON DEVELOPMENT PLAN

A SPECIAL EXHIBITION, "London, the Next Twenty Years," which has been designed to explain to the public the significance of the County of London Development Plan, 1951, is now on view at County Hall. The centre-piece of the exhibition is a 6 ft. diameter contour model of the Greater London area showing, among other features, the New Towns,



ELECTRIFICATION SCHEME: This control station at Penistone has been erected in connection with the Manchester-Sheffield-Wath railway electrification scheme, the first stage of which was opened on February 4. It was designed by Mr. H. H. Powell, B.Arch., A.R.I.B.A., Architect to the Civil Engineer, Eastern Region, British Railways.

proposed expanded towns, and the L.C.C.'s out-county estates where altogether 380,000 people from the inner regions must be found new homes in the next 20 years if the Development Plan is to succeed. Pictures, diagrams and models are used to explain other aspects of the plan.

The exhibition, which is free, is open each day until March 28 (except Sundays) from 10 a.m. to 8 p.m. (6 p.m. on Saturdays). It supplements the statutory display of documents at County Hall and town halls throughout the county.

ARCHITECTURAL TEACHERS' CONFERENCE

THE FOURTH MEETING of the Architectural Teachers' Conference, London Area, will be held at the R.I.B.A., 66, Portland-place, W.1., on March 29, when the chair will be taken by Professor A. E. Richardson, R.A., F.R.I.B.A. In the morning a paper, "The Approach to Working Drawings in the Architectural Course," will be given by the Department of Architecture and Building, S.W. Essex Technical College, and introduced by Mr. D. W. Aldred, F.R.I.B.A. The afternoon's paper, "The Evening Course in Architecture," will be given by the Department of Architecture and Building, Willesden Technical College, and introduced by Mr. N. Keep, F.R.I.B.A. A discussion will follow both papers. There will be a small exhibition of drawings relating to the papers from the various schools represented on the conference. Details from Mr. F. G. Goodin, F.R.I.B.A., Hon. Secretary, Architectural Teachers' Conference, 113, Twyford-avenue, West Acton. W.3.

DESIGN AND PRODUCTIVITY

TO STUDY what is being done in America in the field of industrial design is the mission of a British specialist team which sailed on February 12, under the auspices of the Anglo-American Council on Productivity and of the Mutual Security Agency (formerly Economic Co-operation Administration), which will meet the dollar expenses of the tour.

The team of eleven, of which Mr M. Hartland Thomas, F.R.I.B.A., chief industrial officer of the Council of Industrial Design, is one of the joint leaders, will make a study in the engineering and allied industries of how design can be integrated with production to ensure the best utilisation of available materials.

Another productivity team, concerned with the plastics industry, also sailed for America on the same date. It is led by Mr. A. L. Sparshott, head of development, Witton Moulded Insulation Works. Both teams will prepare reports on their return.

R.I.B.A. PLANNING DISTINCTION

THE COUNCIL of the Royal Institute of British Architects have conferred the R.I.B.A. Distinction in Town Planning upon Mr. William Crabtree, A.R.I.B.A.

Mr. Crabtree studied civic design at Liverpool University under Professor Sir Patrick Abercrombie. He was appointed co-ordinating architect for the development of the central area of Plymouth in 1945-51, and also consultant architect in connection with the redevelopment of the central area of Southampton in 1945-50. Mr. Crabtree has, in addition, carried out large-scale planning of high density flats and houses.

ARCHITECT'S GIFT TO COUNCIL

ST. PANCRAS BOROUGH COUNCIL have been presented with No. 10, Fitzroy-park, Highgate, by Mr. Vincent Harris, O.B.E., R.A., F.R.I.B.A. The house overlooks both Parliament Hill and Hampstead Heath, whilst the gardens are a special feature of the property. Mr. Vincent Harris designed the house in 1932, and the Borough Council have suggested using the house as a mayoral or cultural centre. It is estimated that the yearly running cost would be £1,500.

CANTERBURY DIARY

SIMPLICITY, good design and a high standard of printing are combined in a diary for 1952, produced at their own printing works by students of Canterbury College of Art. An unusual feature of the diary is the prefacing of the four seasons by four charming wood engravings of birds and animals, executed by Phyllis Dawson. The principal of the college is Mr. J. Moody, A.R.C.A.

AN ADAM CHURCH

A PLEA to any person or body interested in the preservation of historic buildings to save the remaining towers of Mistley Thorn church from being destroyed by decay is made by Mr. John Lewis, of Manningtree, Essex, in a recent letter to *The Times*. His letter follows a proposal of the Church authorities to dispose of the lead from the roofs.

The church was built on the banks of the Stour in 1777, to the design of Robert Adam. In 1870 the centre of the church was pulled down as it was considered to be unsafe. The twin towers survived. Mistley Thorn church was one of the few built by the Adam Brothers.

COMING EVENTS

FRIDAY. FEBRUARY 22

BIRMINGHAM AND FIVE COUNTIES A.A.—"Post-War Finland," by Mr. H. Loxley Hare, F.R.I.B.A. Birmingham Art Gallery. 6 p.m.

ROYAL SANITARY INSTITUTE.—Papers on "Housing Progress and Development at Port Talbot," by Mr. G. V. Griffiths, A.M.I.C.E.; "The Health and Local Authority Services and the Population Problem," by Mr. D. J. Davies, M.B.E., B.Sc., M.D.; and "Housing Repair Difficulties," by Mr. G. A. Morgan. Y.M.C.A. Hall, Talbot-road, Port Talbot. 10 a.m.

INSTITUTION OF HEATING AND VENTILATING ENGINEERS (MANCHESTER AND DISTRICT BRANCH).—"Full Scale Heating Research at the Building Research Station," by Dr. J. C. Weston, B.Sc. Engineers' Club, Albert-square, Manchester. 6.30 p.m.

TUESDAY, FEBRUARY 26

L.M.B.A. (SOUTHERN AREA).—Luncheon and address by Mr. Norman H. Walls, F.R.San.I., A.I.Struct.E., on work of National Housebuilders' Registration Council. Cafe Royal, North End, Croydon. 1 p.m.

WEDNESDAY, FEBRUARY 27

ARCHITECTURAL ASSOCIATION.—"Quo Vadis, Architectural Association?" Speakers: Mr. Anthony Cox ("The Past"), Mr. John Kay ("The Present"), Mr. Terry Knight ("The Future"). A.A., 36, Bedford-square, W.C.1. 8 p.m.

ROYAL SOCIETY OF ARTS.—"The Work of the National Research and Development Corporation," by the Earl of Halsbury, R.S.A., John Adam-street, Adelphi, W.C.2. 2.30 p.m.

MINISTRY OF AGRICULTURE.—Conference on "Storage of Grain on the Farm." Town Hall, Peterborough. 2 p.m.

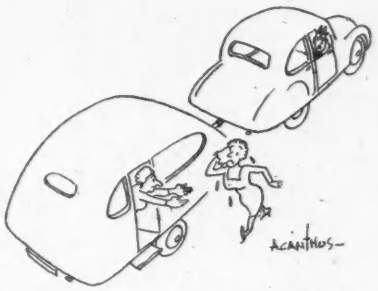
THURSDAY, FEBRUARY 28

INSTITUTION OF ELECTRICAL ENGINEERS.—Annual dinner, Grosvenor House, Park-lane, W.1. 7.30 p.m.

SATURDAY, MARCH 1

NORTHAMPTON BOROUGH COUNCIL.—Opening by Professor Gordon Stephenson, B.Arch., F.R.I.B.A., M.T.P.I., of an exhibition of Northampton County Borough's Development Plan. Guildhall, Northampton. 3 p.m.

SWEDISH SOCIETY OF ARCHITECTS AND THE SWEDISH INSTITUTE.—Opening of an exhibition of modern Swedish architecture. Building Centre, Store-street, W.C.1. Continuing until March 29. 9.30 a.m. to 5 p.m. (Saturdays, 1 p.m.).



"All right! Go home to your mother."

GLOUCESTER CATHEDRAL ROOF

THE ROOF of the south aisle of Gloucester Cathedral, which has been covered for 500 years with lead strips, is being retiled with Cotswold stone tiles taken from old farms, country houses and barns. Beetle had got into the huge tree-trunk supports and parts of the roof had caved in. Four new trusses are being used to replace old ones; one of the latter is to be displayed in Gloucester Museum.

PROFESSIONAL ANNOUNCEMENTS

MR. DAVID GODDARD, A.R.I.B.A., A.A.Dipl., has moved his London office to 120, Chancery-lane, W.C.2 (Tel.: Chancery 5966). He now practises there in association with MESSRS. ANDREW CARDEN and W. E. GODFREY, AA.R.I.B.A. Trade catalogues will be welcomed.

MR. FRANK LEVETT, F.I.Q.S., quantity surveyor, has opened an office at 3, North Bar Within, Beverley, E. Yorks (Tel: Beverley 623).

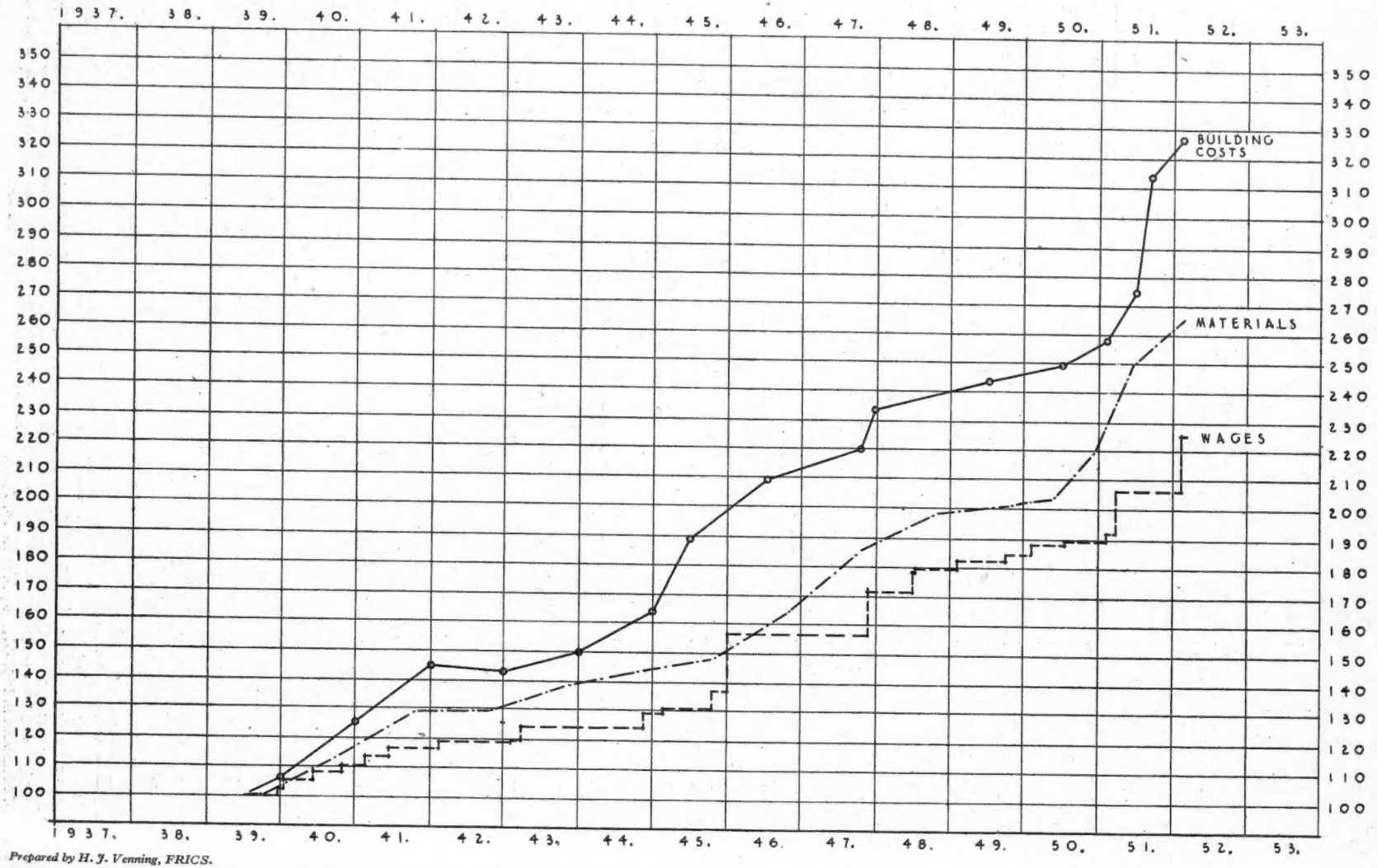
We are informed that MESSRS. D. D. YEOMAN, A.R.I.C.S., and H. G. EDWARDS, A.R.I.C.S., have entered into partnership and are now practising as quantity surveyors from 28–30, Wigmore-street, W.1 (Tel.: Welbeck 5489).

F. J. MEEKINS AND PARTNERS, quantity surveyors, announce the closing of their Leeds offices at Oaktree House, 408, Oakwood-lane, Leeds 8. They have now taken central offices in Leeds at The Building Centre, Brunswick-terrace, Leeds 2.

FROM "THE BUILDER" OF 1852

Saturday, February 21, 1852.

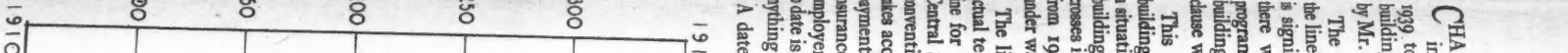
THE EXHIBITION BUILDING:— . . . Sir Charles Fox stated that the contractors had received from the Royal Commissioners about 140,000*l.* for the use of the building, and that the latter declined to entertain the question of its purchase, though they still had the power of buying it for a total of 205,000*l.* The value of the materials, to pull down and sell, had been estimated at 33,250*l.* and the labour and materials had actually cost the contractors, 160,000*l.* Some private *bona fide* offers had been made for the purchase of the building, but they would not entertain them till the Government decided; and, under all the circumstances, the price to the Government (in addition to the 140,000*l.* paid by the Royal Commissioners) would be 65,834*l.*, besides the cost of maintaining the structure from the 1st of December last, and interest on the difference between the amount already received and the total price to the date of the purchase.



Prepared by H. J. Venning, FRICS.

BUILDING COSTS, 1939–1952. *Chart A shown above plots the rise in Wages, Materials and Building Costs over the years* 1939 *(Datum* 100*) to January* 1952 (327).

CHA
in
1939 to
buildin
by Mr.
The
the line
is signi
there w
program
building
clause w
This
building
a situati
building
crosses i
from 19
under w
The li
actual te
line for
Central
conventi
takes acc
payment
insuranc
employe
to date is
anything
A date



Prepared by H

BUILDIN

THE COST OF BUILDING

Variations from 1914 *to Date*

CHARTS on this and facing pages show (chart A) the rise in wages, materials and building costs over the years 1939 to 1952, and (chart B) the fluctuations in wages and building costs from 1914 to date. They have been compiled by Mr. H. J. Venning, F.R.I.C.S.

The line of building costs in chart A has risen faster than the lines for materials and wages. Comparison with chart B is significant; the latter shows that soon after 1921, when there was a temporary curtailment of the house building programme and the rise and fall clause was abolished, building costs fell steeply, and continued to do so until the clause was reintroduced in 1940.

This chart B shows that starting from 1914 the cost of building, broadly speaking, ran parallel with the wages line, a situation which continued until about 1943. The cost of building line naturally is above the wages line, though it crosses it occasionally when keen competition (as, for example, from 1930 to the outbreak of war) brings cost of building under wages.

The line showing building costs is in each case based on actual tenders for the normal run of building contracts. The line for materials is based on the figures published by the Central Statistical Office. The line for wages is based on a conventional average of one labourer to one craftsman, and takes account of the indirect increases in wages consequent on payment for guaranteed time, travelling time, increases in insurance premiums, holidays with pay contributions by the employer, etc. (A list of the variations in wages from 1939 to date is given in the next column.) The line does not include anything to do with incentive payments.

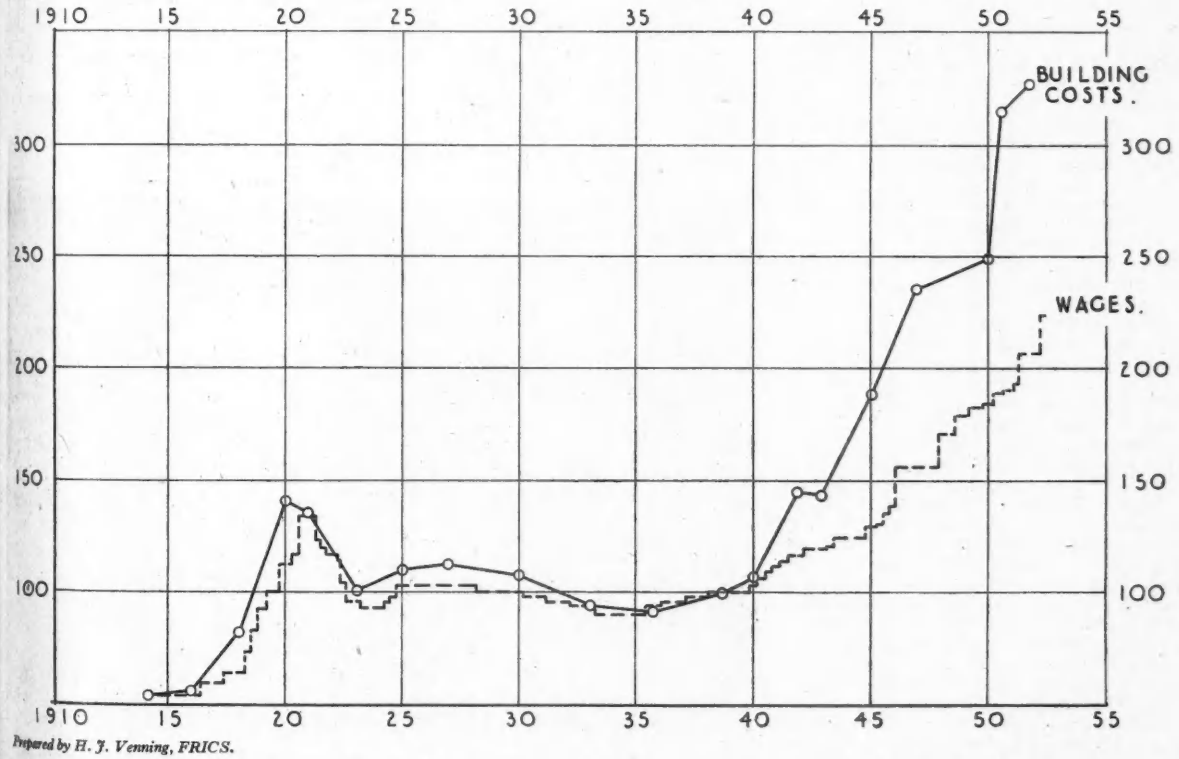
A date which may be noticed as affecting costs is April, 1950, when the cost of petrol suddenly increased, and there was a general rise in cost of materials following the outbreak of the Korean War.

(Copyright *The Builder*.)

WAGES

Wages of one craftsman and one labourer (London Rates), separately and conjointly with an allowance for indirect benefits, such as the Guaranteed Week, Holidays with Pay and increased allowances.

	Craftsman	*Labourer*	*Conjointly*
	s. d.	s. d.	s. d.
June, 1939 ..	1 9 and	1 3¾	3 0¾ plus 5%
December, 1939 ..	1 9½ ,,	1 4¼	3 1¾ ,,
January, 1940 ..	1 10 ,,	1 4¾	3 2¾ ,,
June, 1940 ..	1 10½ ,,	1 5¼	3 3¾ ,,
September, 1940 ..	1 11 ,,	1 5¾	3 4¾ ,,
February, 1941 ..	1 11½ ,,	1 6¼	3 5¾ ,,
June, 1941 ..	2 0 ,,	1 6¾	3 6¾ ,,
February, 1942 ..	2 0¾ ,,	1 7¼	3 7¼ ,,
February, 1943 ..	Holiday Stamp 1s. 6d.		3 7¾ plus 5½%
April, 1943 ..	2 1½ and	1 8	3 9½ ,,
November, 1944	2 2½ ,,	1 8¾	3 11½ ,,
February, 1945 ..	2 2½ ,,	1 9¼	3 11½ ,,
October, 1945	Guaranteed Week		3 11¾ plus 6¼%
July, 1945 ..	2 3¼ and	1 10	4 1¼ ,,
January 1, 1946 ..	2 7½ ,,	2 1¼	4 8¾ ,,
September 30, 1946	Increase H. & I. to 2s.		
February, 1947	Travelling increased		
September, 1947	Holiday Stamp 2s.		
November 16, 1947	2 10½ and	2 3¾	5 2¼ ,,
July 5, 1948 ..	Health Scheme		plus 10%
July 11, 1948 ..	2 11 and	2 4	5 3 ,,
February 7, 1949	2 11½ ,,	2 4½	5 4 ,,
October 3, 1949 ..	2 11½ ,,	2 5	5 4½ ,,
February 6, 1950	3 0 ,,	2 6	5 6 ,,
July 3, 1950 ..	3 0 ,,	2 6½	5 6½ ,,
February 5, 1951	3 0½ ,,	2 7	5 7½ ,,
March, 1951 ..	3 3 ,,	2 9½	6 0½ ,,
March 26, 1951 ..	Holiday 3d. increase		
April 2, 1951 ..	Holiday 3d. increase		
October 1, 1951 ..	Increase in Insurance stamps		
February 4, 1952	3 6 plus	3 0½	6 6½ plus 10½%



Prepared by H. J. Venning, FRICS.

BUILDING COSTS 1914–1952. *This chart (B) shows the fluctuation in Wages and Cost of Building from* 1914 *to date.*

BUILDING COSTS, 1939–1952. Chart A shown above plots the rise in Wages, Materials and Building Costs over the years 1939 (Datum 100) to January 1952 (327).

BOOKS

TOWNS AND BUILDINGS. By Steen Eiler Rasmussen. (Liverpool University Press.) Price 21s. net.

MR. RASMUSSEN'S name is already familiar in England as an acute critic and an accomplished writer. This new volume enhances his reputation and is as interesting as it is handsomely produced. It has been printed in Denmark, where it was originally published in 1949, and the English translation is excellent. There are, it is true, a few minor errors of rendering, and a few slips due to a compositor working in a foreign language, but the net result is creditable to all concerned.

In his preface, the author explains that, at the time the book was planned, in 1945, "the possibilities of procuring good paper for difficult reproduction were few; therefore it was decided to illustrate the work solely with line drawings, which make small demands on the paper's quality. . . ." For this decision there need be no regrets. The delicately drawn illustrations are of the highest standard, whether they be brilliant thumbnail sketches, carefully delineated façades, or wonderfully ingenious sectional drawings with projected shadows.

Whether all are the work of the author we are not told, but whoever may be the draughtsman he is to be congratulated. The numerous town-plans are equally clear and informative; not a line is blurred or redundant. Very wide margins are used, and in them are printed captions and references in minute italics. The adoption of uniform scales — usually 1:20,000 or 1:100,000 for town-plans, 1: 2,000 for detailed plans, and 1:500 for architectural elevations and sections —is a welcome feature, as are the numerous portions of old pictorial town-plans of Paris, reproduced to a very large scale.

The titles of the 16 chapters suggest a series of essays on various aspects of town-planning and civic design, rather than a connected history of the subject, and indeed not all of the field is covered. Thus, there are no plans of ancient Athens or ancient Rome or of many other "old favourites." Nevertheless, there is a consecutive thread or narrative running all through the book; and if there are a few obvious omissions, the treatment of many great cities—notably the post-Renaissance growth of Rome, Paris "of the Musketeers," and since, Vienna and Amsterdam—is as illuminating as any previous writer has ever produced; and the growth of London receives attention, including an excellent comparison with Paris. Denmark naturally figures prominently in the story, and Copenhagen itself occupies about one-sixth of the whole book, forming a most valuable study.

Ranging from the early Greek "colonial" cities to the twentieth century, the author concludes with an acute comparison between Ebenezer Howard's English theory of the cottage-home in the Garden City, on the one hand, and Le Corbusier's French theory of the stark apartment giving direct on to a view, on the other hand: all very fairly stated, but with an expressed opinion that "functionalism" will triumph in the end.

Two passages referring to London are open to question. Writing of the villages which have been absorbed by the spread of the Metropolis (page 106), the author observes that: "At many places within London, two such towns are separated only by a street. Yet, when you go from one to the other, there is a marked difference. The inhabitants speak another dialect, they have different political views." Again, on page 115, he tells us that "in many cases" in the eighteenth century London houses had their brickwork painted black from the outset, with fine white mortar joints. Such cases may be known; but if so, they are uncommon. But these are trifling criticisms: the fact remains that the book is packed with ideas and should be an inspiration to English readers. M. S. B.

ENGLISH ROMANESQUE SCULPTURE, 1066-1140. By George Zarnecki, Ph.D., M.A. (Alec Tiranti, Ltd.). Price 7s. 6d. net.

THIS NEW VOLUME in the "Chapters in Art" series consists of a selection of photographs with explanatory notes and a brief introduction. According to a note on the jacket, the author is "an art historian on the staff of the Courtauld Institute" who "has been engaged for several years on the study of this early period." The attention that he devotes to its iconography is welcome, for many of the examples, apart from being decayed, display scenes and allusions which are obscure to the average reader.

He points out that, so far from constituting a "poor man's Bible," these elaborately carved details represent very few religious or moral subjects, being noteworthy either for their decorative merits or their grotesque humour, e.g., the fantastic series of animals playing musical instruments, from Canterbury. No pre-Conquest examples are illustrated, the author being chiefly concerned with the "Normanisation" that began in 1066. After 1100 most of the artists were English-born. By ending his story at 1140, he excludes many fine late-Norman examples.

The author dates the two reliefs of the Raising of Lazarus, in the choir of Chichester Cathedral, at c. 1140, though many other scholars (including Gardner) claim a date for them a century or so earlier. Dr. Zarnecki's little volume is readable, handy and well produced. In his list of acknowledgments, he makes no mention of the splendid photographs of capitals at Canterbury: if, in fact, they are his own work, he is to be congratulated.

M. S. B.

HOUSES BUILT UNDER LICENCE

Minister's Advice to Speed Construction

THE Minister of Housing and Local Government, Mr. Harold Macmillan, has made five suggestions to help local authorities speed the building of houses under licence. In a circular (No. 21/52, dated February 12) he states that since the issue of his circular of November 27 last (No. 73/51) his attention has been drawn to a number of administrative suggestions which may be of assistance to local authorities in expediting the building of houses under licence in pursuance of their increased discretion in this matter. The circular continues:—

(1) There are throughout the country many plots of land, with services already available, which by reason of their limited size are unsuitable for municipal housing schemes but are suitable for the erection of a single house or a small number of houses by private persons. House building on these sites can be speeded up because services are already available, and such sites will be specially suitable for small builders. The authority should, in the exercise of their powers to issue licences, take any opportunity to bring these sites into use.

(2) In selecting sites for their own housing operations the authority should, so far as possible, avoid the use of sites which are owned by builders who themselves propose to build houses on these sites.

(3) Continuity of building is a material factor in the progress and efficiency of private building. Where a builder desires to build a number of houses on a site, such continuity, and the assurance that houses should go and be seen to go to persons in need of a house, can be satisfied by issuing licences in a block for a suitable number of houses at the same time on condition that the occupants of the houses when completed are approved by the authority. Such arrangements have, it is understood, already been made as a matter of current administration by a number of local authorities, and the Minister agrees that it is appropriate to make them.

WILL OUR SCHOOLS COME TO THIS? The recent announcement of cuts in the school building programme, especially the absence of starting dates, inspired this dinner menu cover by Mr. A. T. H. Hall, a member of the staff of Mr. H. Conolly, FRIBA, Essex County Architect.

(4) There are many houses with three or more bedrooms occupied by one or two persons who would be glad to have a smaller house if they could get one. Many authorities have found that the building of small houses in their own programme has enabled them to meet the needs of these persons and at the same time to make a larger house available for family use. Similar results should often be attainable from the building of small houses under licence, and the authority should keep the point in mind in considering applications for licences for the building of small houses to be occupied by persons who would thus release larger houses.

(5) The authority may issue all the licences they have decided to grant in time for the licensees to take advantage of the good building weather of the coming months if they are satisfied that this would not dislocate the local building programme.

Paragraph 7 of the Appendix to Circular 73/51 is modified accordingly.

PRIVATE HOUSE-BUILDING

"Local Authorities Must Act"

SPEAKING at the annual general meeting and luncheon of the South-Western Federation of Building Trades' Employers at Bristol on February 20, MR. J. IAN ROBERTSON, F.I.O.B., president of the N.F.B.T.E., said:—

"The effect of Mr. Harold Macmillan's recent circular in the course of which he advises local authorities to issue block licences and to refrain from the purchase of builders' land, depends entirely on the action taken by local authorities. The circular is another step in the right direction, but unless local authorities accept Mr. Macmillan's advice and act on it promptly the free enterprise builder cannot make his full contribution to the housing programme. To do this he must, as Mr. Macmillan recognises, have enough land and a sufficient number of licences.

"The advice about the building of small houses to meet the needs of those who wish to vacate larger ones is admirable, but here, again, all depends on the actions of local authorities. Most of the people concerned will wish to leave towns for the rural districts and unless the arrangements for the transfer of licences from one authority to another are operated in a more sensible way than at present, large numbers of family houses will continue to be occupied by elderly couples and a lot of valuable accommodation will be wasted."

FIRST REGIONAL HOUSING BOARDS

To Serve South-West and North-West Areas

THE Ministry of Housing and Local Government states that the first two regional housing production boards have been set up. One is for the south-western region, comprising Cornwall, Devon, Gloucestershire, Somerset and Wiltshire, and its headquarters will be at Bristol. The independent chairman is Mr. Hugh Rogers, director of the Imperial Tobacco Company, Bristol, and the other members represent the building trades employers, the operatives, the Ministry of Housing and Local Government, the Ministry of Labour and the Ministry of Works.

The other is for the north-western region, comprising Lancashire, Cheshire, and part of Derbyshire. The independent chairman is Sir Harold Parkinson, vice-chairman of the National Savings movement.

CORRESPONDENCE

COST OF LOCAL AUTHORITIES' ARCHITECTURAL DEPARTMENTS

To the Editor of *The Builder*

SIR,—I think we should all agree with the sentiments expressed in your last issue by the City Architect of Manchester —that investigations into the relative merits of "official" departments and private practice are apt to be unscientific, and only tend to create, between different sections of a profession, friction which does not naturally exist.

In this case, however, certain figures were quoted in your widely-circulated newspaper, from which it might have been wrongly inferred that "private" professional services were very much more costly than departmental work, and a desire for survival naturally prompted attempts to restore a true balance!

In quoting an actual example, I also pointed out that exact comparison could only be made in such simple cases. Here the departmental costs, being known, could be stated in the nearest "round" figures as an average over a period; only a regular "yearly allocation" of work was involved, and no "maintenance," abandoned schemes or the like.

I certainly would not wish to question Mr. de Soissons' figures on the subject—if only for reasons similar to those of your original correspondent!

DOUGLAS SMITH.

45, Highgate,
Kendal, Westmorland.

PROPOSED REGISTRATION OF CLERKS OF WORKS ACT

To the Editor of *The Builder*

SIR,—As this is a matter of some importance to the building and engineering industry would you please be good enough to publish this letter in your newspaper.

The question of a Clerks of Works Registration Act was taken up earnestly some years ago, and as a result a joint committee comprising members representing several important clerks of works' associations throughout the country was formed to promote legislation that would lead to :—

(i) The registration of all clerks of works.

(ii) The prohibition of the use of the title "clerks of works" by persons not so registered.

(iii) Establishment of a body to secure proper standards of professional qualifications for clerks of works.

The necessity for such legislation would, at first sight, be apparent to all persons engaged in architecture, building or engineering, *i.e.*, to protect the qualified clerk of works, but the joint committee have as their main object the desire to protect the building industry and all those concerned by ensuring that qualified persons only are engaged in superintending, on behalf of the clients or their agents, the progress of the works.

We often hear the term "jerry building" used, but can there be jerry building if there are clerks of works supervising the works? There must be an answer to this.

The joint committee consider that the qualified clerk of works is as important to the building industry as other professional persons or operatives, and that in the interests of all the professions concerned, the building industry and the client (who is so often the public), the occupation of clerk of works must be fully recognised as a profession and that the name or title should be safeguarded. To this end therefore the committee have prepared the various clauses to be incorporated in the proposed Registration Bill and are now approaching the drafting stage.

FRANK H. PECK,
Hon. Secretary to the Joint Committee for the proposed Registration of Clerks of Works Act.

23, Anthony-road, Welling, Kent.

BUILDING WAGES AND INFLATION

To the Editor of *The Builder*

SIR,—So increased wages lower the standard of living (*vide* Mr. Hosken, in your issue of February 15)?

Do increased profits lower the standard of living? Or increased dividends? Or increased anything except wages? Is it not a fact that wage demands arise because the cost of living increases first? The intolerable burden of the cost of living *compels* workers to make wage demands. These demands will not cease, and cannot cease, while the cost of living rises. Of course, there will come a point when something will smash, but that is not the workers' responsibility.

If you examine industry throughout, you will find that profits are exorbitant everywhere. When circumstances favour profit-making, as now, when has business been restrained by counsels of moderation; by consideration of the public weal, or by a sense of modesty?

H. HEUMANN [F.R.S.S.]
Statistical and Research Dept.,
National Federation of Building Trades Operatives.
Federal House, Clapham, S.W.4.

SHAKESPEARE ON THE HOUSING SHORTAGE

To the Editor of *The Builder*

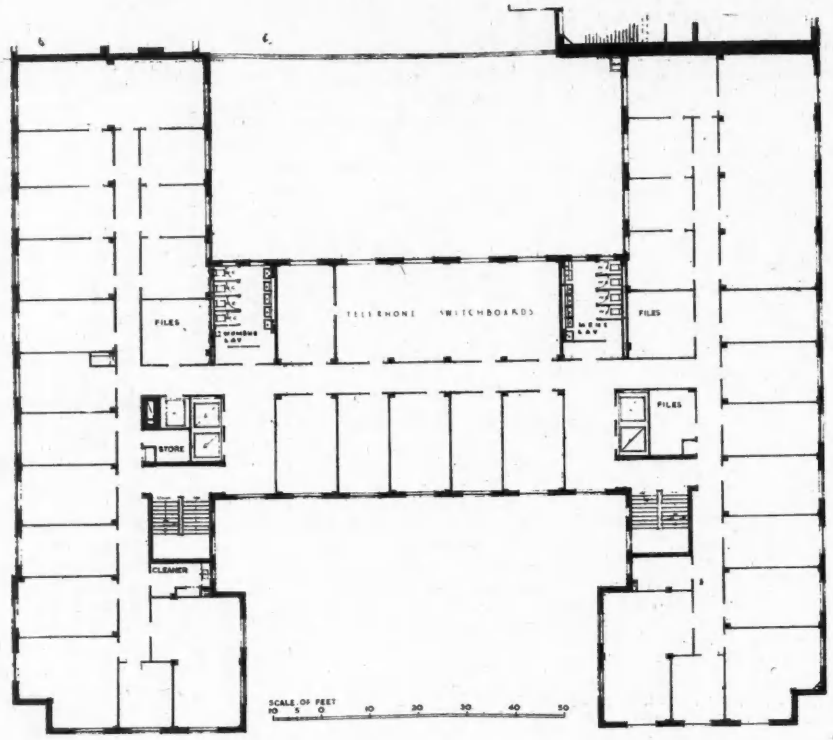
SIR,—I have just come across the following. Shakespeare always has the apt comment!

"*Who can speak broader than he that has no house to put his head in? Such may rail against great buildings.*"—Timon of Athens, Act III. Scene IV.

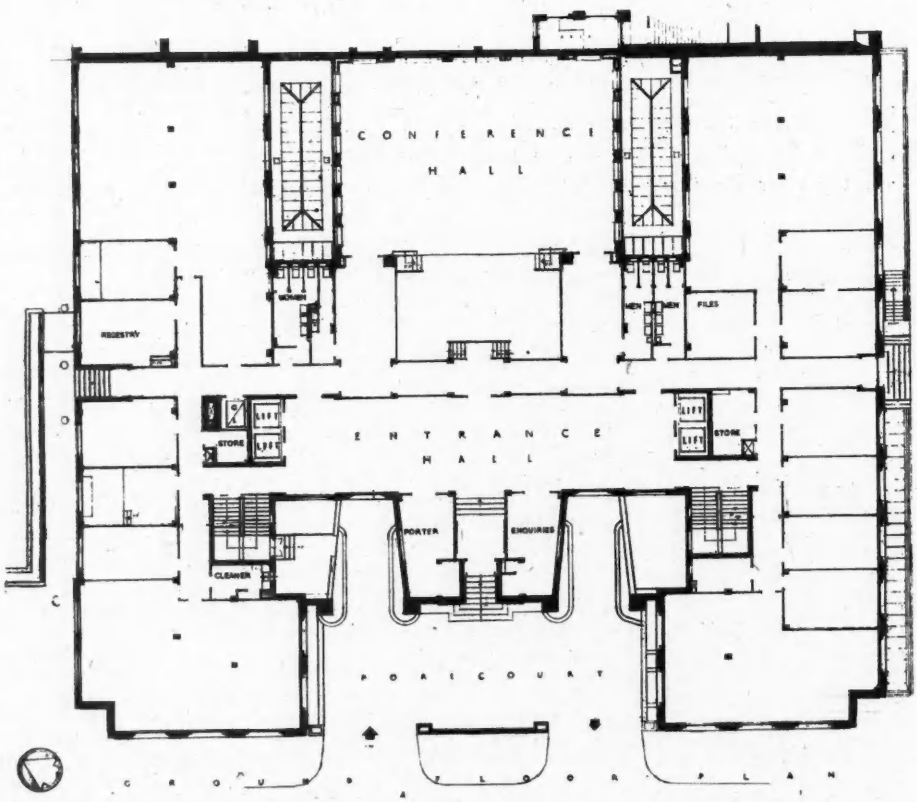
ONLOOKER.

RESTORATION OF POET'S HOUSE

KEATS HOUSE, Hampstead, is to be closed during the work of restoration and repair of war damage. The house, built in 1816, suffered damage from no fewer than three flying bombs during the last war. Hampstead Borough Council, the custodians of the house and library near by, aim to restore it as far as possible to the state in which it was known by the poet. Restoration will cost about £3,000 and is under the direction of Mr. Alan J. Reed, A.R.I.B.A.



MOH HEADQUARTERS, SAVILE ROW : Typical upper floor plan. Below : Groundfloor plan.



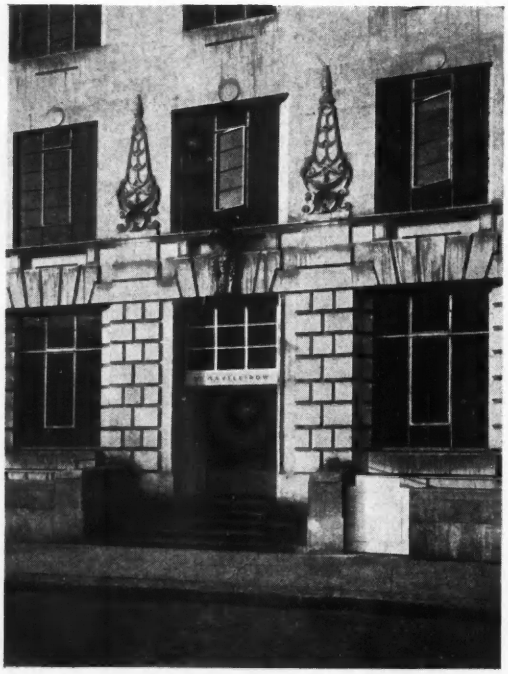
22 1958

View of main front to Savile-row.

MOH HEADQUARTERS, 23, SAVILE ROW, W1

W. CURTIS GREEN, RA, SON AND LLOYD, ARCHITECTS

View of Savile-row (left) and New Burlington-street elevations.



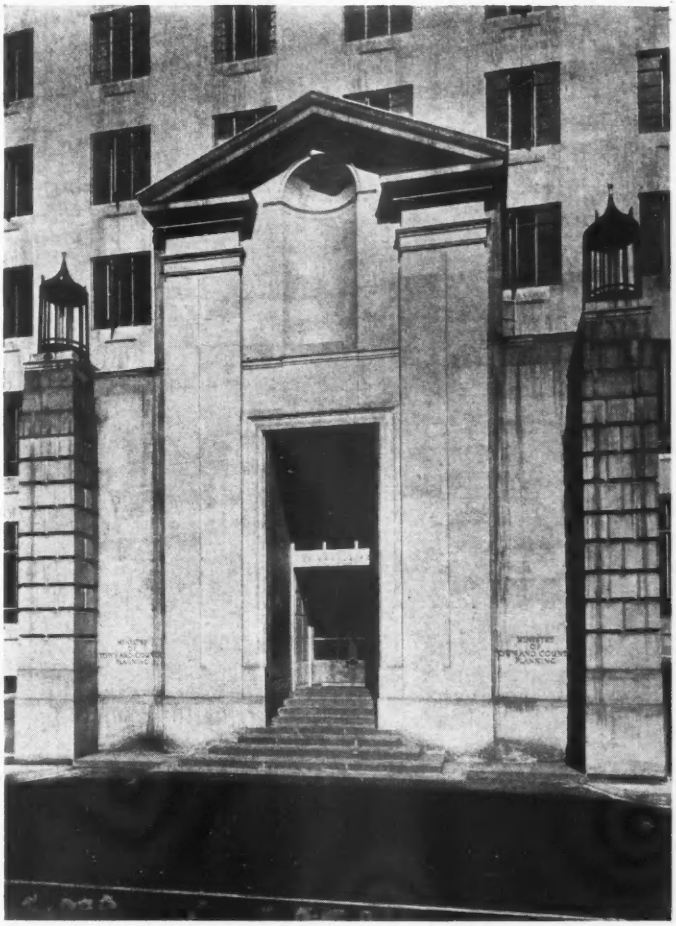
New Burlington-street entrance.

THIS building, which is now occupied by the staff of the Ministry of Health, was originally designed as the headquarters of the Central Electricity Board. For a brief period before the present occupiers moved in it was used by the Ministry of Town and Country Planning. It has a reinforced concrete frame and solid reinforced concrete floors. External walls are of 9 in. brickwork to which is bonded, on the Savile-row and New Burlington-street elevations, a nominal 3 in. stone facing. Walls to New Burlington-place and internal courtyards are faced with Uxbridge flint bricks.

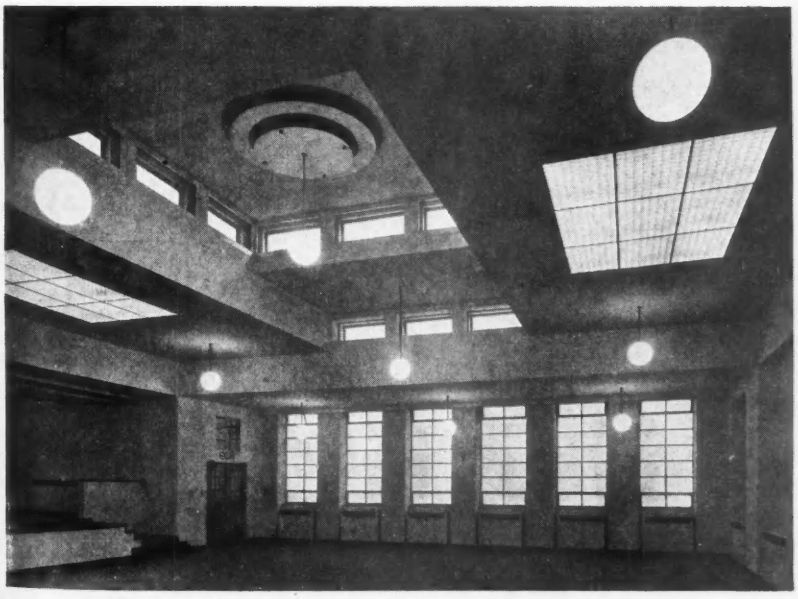
Retaining walls are of 6 in. thick reinforced concrete. The building has a flat asphalted roof; window frames are of steel. Accotile floors have been laid throughout the offices and wood-block floors in the lecture room and canteen. Heating is by hot-water radiators.

Messrs. Deacon, Son and Knight were the quantity surveyors, the builders were Sir Robert McAlpine and Sons, and the clerk of works Mr. G. F. Ashdown. Following were sub-contractors:

Stone, Bath and Portland Stone Firms, Ltd.; stone carving, Laurence A. Turner; joinery, Boulton and Paul; heating, Z. D. Berry and Sons, Ltd.; plumbing, Dent and Hellyer; sanitary fittings, John Bolding; Accotile flooring, laid by Armstrong Cork Co., Ltd.; wood block, Hollis Bros.; steel windows, Henry Hope and Sons, Ltd.; aluminium and wrought iron work, Hurst Franklin and Co., Ltd.; Paropa roofs, Frazzi, Ltd.; asphalt roof, Val de Travers; sprinklers, Automatic Sprinkler Co.; lifts, Hammond and Champness; plastering, W. A. Telling and Sons; kitchen ventilation, Ozanair, Ltd.; terrazzo, Fenning and Co., Ltd.; lightning conductors and flagstaff, Grays; precast concrete window linings, Girlingstone; lavatory partitions, Holoplast, Ltd.; linoleum wall finish, C. M. Bennett; tiling, Carter and Co.; ironmongery, N. F. Ramsay and Co., Ltd.; signs and lettering, Dale's (Lettering), Ltd.

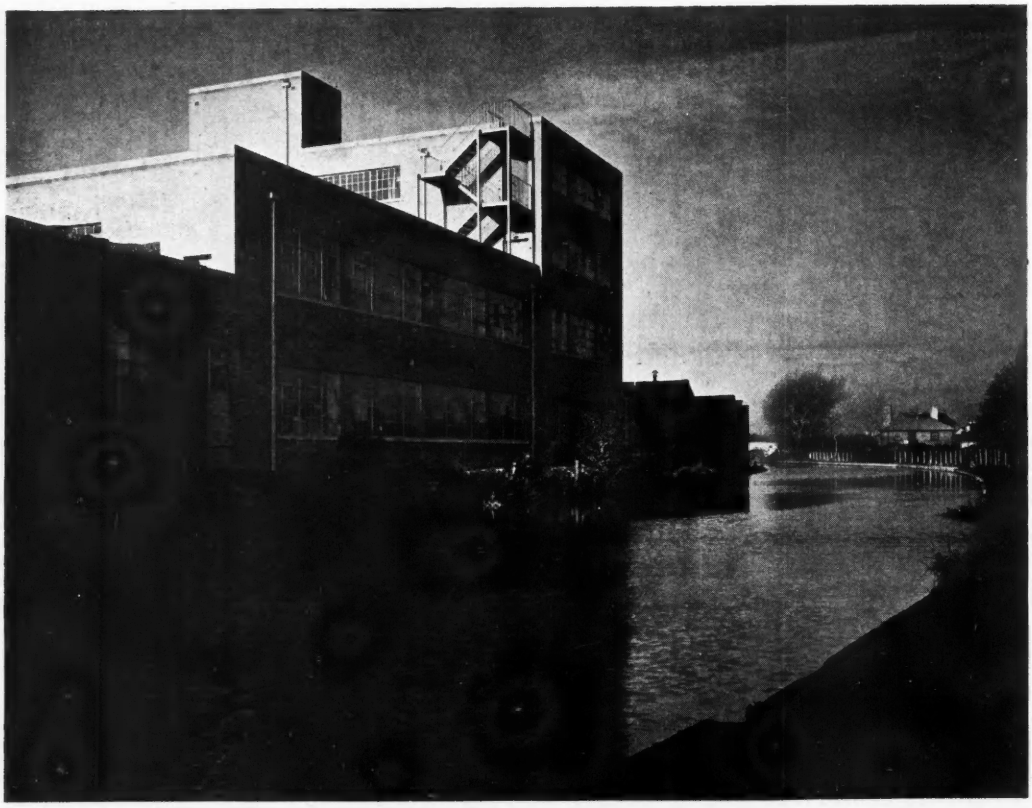


Detail of main entrance.



MOH HEADQUARTERS SAVILE ROW, W1

Conference hall.



A view of the new extension across the Grand Union Canal.

WAX POLISH FACTORY, WEST DRAYTON, MIDDX.

C. HOWARD CRANE, AIA, ARCHITECT AND ENGINEER

AN extension to the existing factory of S. C. Johnson and Son, Ltd., for the production of floor and other polishes, is the subject of this article. The object was to erect a building as quickly as possible to provide a more efficient and speedier system for the production of wax polishes in larger quantities for export and home consumption. The building is of particular interest because it is one of the first reinforced concrete-framed buildings to be constructed with a new system of prefabricated welded reinforcement known as Frameweld, a method which it was found greatly assisted the time factor on a confined site with practically no storage space or working area beyond that required for concrete-mixing operations. This building is only the first stage in the development and rebuilding of the whole of the existing premises and it is, therefore, designed to allow for vertical and horizontal extension.

The process of manufacture of the polish is by a gravity system which can be briefly described as follows: A loading dock at yard level is provided for receipt of the raw wax which is then transferred to the basement stores, from which it is elevated as and when required to the top floor by means of a "stacatruc" and a large goods lift, where it is weighed and placed into the base melting kettles, further treated on the second floor, passing to the first floor through heated pipes for blending with other waxes. Containers are stored on the first floor and passed to the ground floor by conveyors. The wax is fed through piping to the filling machines and the conveyors on the ground floor where the containers are filled, sealed and packed. The packages are then conveyed to the existing buildings for shipping.

The site of the new building is at the rear of the existing factory. It adjoins the Grand Union Canal on the north-east side, and is bounded by Bentinck-road on the south east. The water level of the canal is about four feet above the road level at the entrance gates and the site slopes gradually down to Bentinck-road. Trial holes revealed made-up ground to a depth of about five to six feet below the water level of the canal. Below the made-up ground a gravel bed was exposed which was penetrated to a depth of eight feet, and was found to be consistent and dry.

The process of manufacture, together with the restrictions imposed on the site by the Town and Country Planning Act, 1947, dictated the design of the building. The former imposed the number of floors and the area of each floor, and the latter the position of the building in relation to its surroundings from the aspect of light angles. In this connection it was the architect's first experience in applying light indicators under the 1947 Act which determine the set-backs on the various floors in relation to the adjoining properties and roads.

The main building is rectangular in plan and based on a grid of 19 ft. 6 in. square. It was decided, in view of the fact that the basement level was about 8 ft. below the water level of the canal and that the

rear wall was for most of its length two or three feet from water edge, that the retaining wall to the basement should be set back about ten feet, about half the width of the grid.

The floors in the production and storage areas are finished in granolithic; the floors in the toilets and the locker rooms are finished with quarry tiles; the staircases are finished in granolithic; the walls are fairfaced decorated brickwork; the toilet areas are finished in terrazzo; and the concrete columns, beams and ceilings are left smooth from the shuttering. The window frames are in aluminium alloy, the doors being in hardwood or metal. "Rigifix" units are built into the concrete frame to provide easy and flexible fixings for the service and other pipes or conveyors.

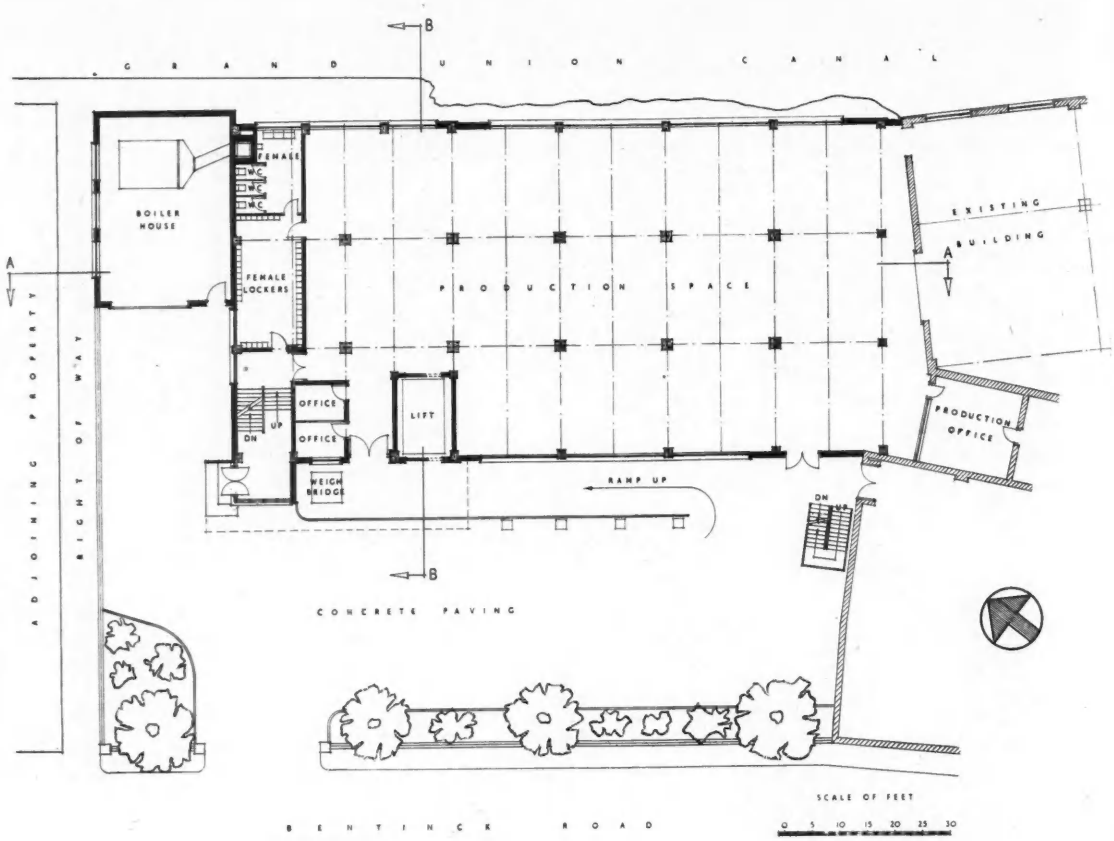
A sprinkler system is installed on all floors and the areas affected by white spirit are provided with additional protection. White spirit used in the manufacture of some of the polishes is stored in tanks under the receiving yard and pumped to the required positions in the new building. The existing oil fired boiler was found to have sufficient margin to deal with the additional space heating and production requirements, and was moved and installed in the new single-storey boiler-house. The heating is by steam unit heaters in the factory and steam convectors in the offices, cloakrooms, etc.

The building is faced externally with brick and is supported by a reinforced concrete frame. The latter was adopted because, at the time the project was planned, steel was controlled and economy in its use was, as now, an essential factor. Owing to fire risk, concrete encasement to structural members was necessary and it was therefore considered that reinforced concrete would prove the most economical medium for construction.

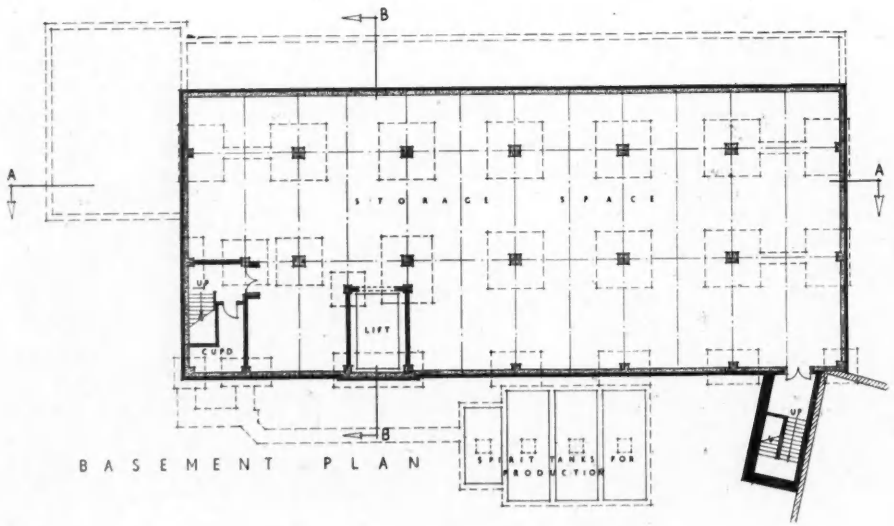
The heavy floor loading of three cwts. per square foot influenced the choice of solid concrete slab, and its use in conjunction with the reinforced concrete framing produced a very economical arrangement.

For the purpose of design, the superimposed load was reduced to two and a half cwts. per square foot for the secondary beams and two cwts. per square foot for the main beams and columns. The design is based on Code of Practice No. 114/1948. The basement retaining walls are constructed in reinforced concrete with asphalt tanking outside, and the column foundations are designed to transmit loads of about three and a half tons per square foot to the sub-soil. The external wall abutting on to the canal is carried on bored, cast *in situ*, reinforced concrete piles, which were used in order to avoid damage to the canal banks. It is interesting to note that although boring took place within two to three feet of the canal, water had to be used to facilitate boring operations. Owing to the very congested nature of the site and the urgent need for completion of the building, consideration was given to methods whereby the frame could be erected in a speedy and economical manner. It was eventually decided to use a patented system of

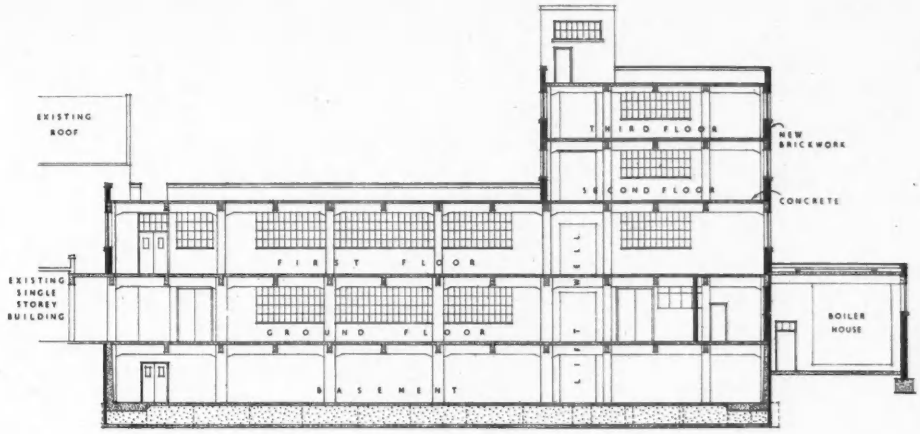
Entrance from Bentinck-road.



GROUND FLOOR PLAN

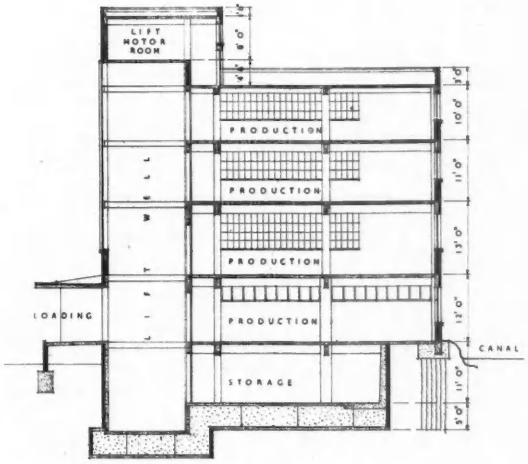


BASEMENT PLAN



SECTION A-A

SCALE OF FEET
0 5 10 15 20 25 30

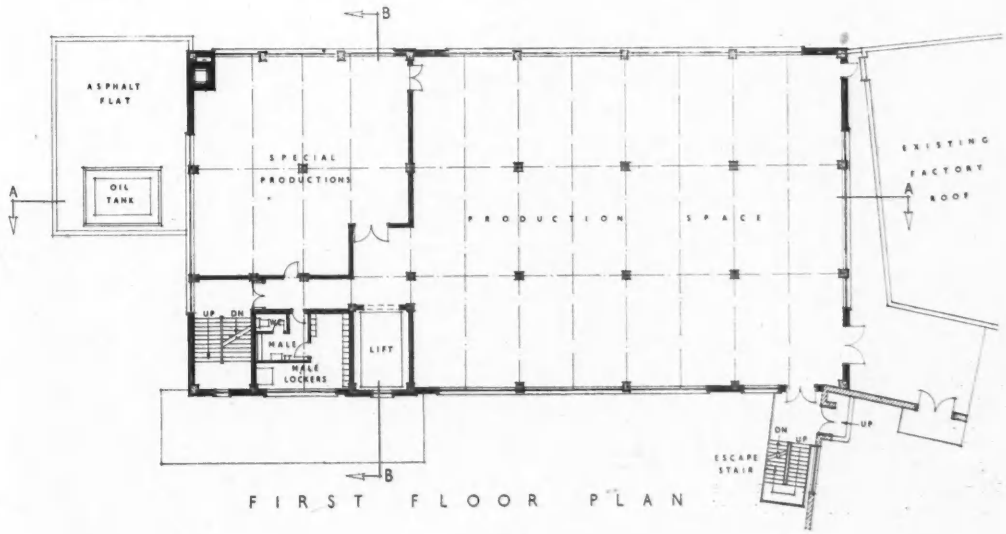


SECTION B-B

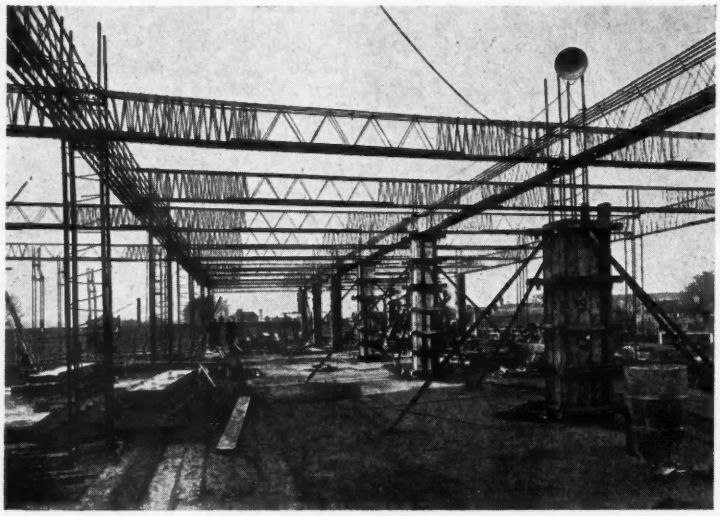
reinforcement known as Frameweld, which appeared to be ideally suited to a project of this nature.

The Frameweld system consisted of welded column and beam reinforcement units prefabricated in the patentees' workshops. These were brought to the site and immediately erected in a similar manner to structural steelwork to form a rigid self-supporting frame. The usual benders and fixers normally employed at site on reinforced concrete construction were replaced by Frameweld erectors only.

This was found to have a distinct advantage on the already congested site in that no space was taken for storage of rods and sorting and bending and making up reinforcement, and also reduced the number of workmen required at the site, easing the problem of general labour shortage.



FIRST FLOOR PLAN



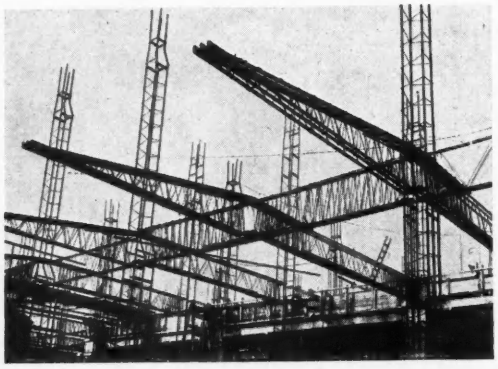
Reinforcement frame and concrete construction in progress at an upper floor.

labour, and the abnormal rainfall which was experienced during the first few months of 1951 when the concrete frame was being formed.

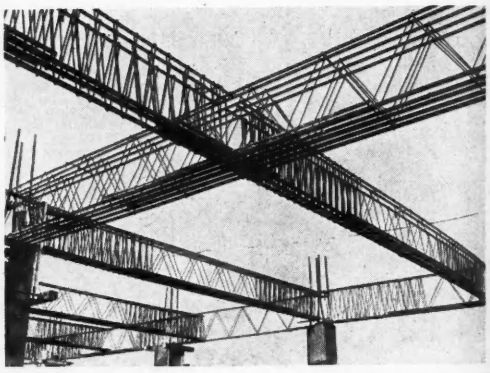
The general contractors were Messrs. G. Percy Trentham, Ltd., and the Frameweld reinforcement was supplied and fixed by the patentees, Messrs. T. C. Jones and Co., Ltd. Following is a list of sub-contractors :

Aluminium fascia, Fredk. Braby and Co., Ltd. ; artificial stone, The Girlingstone Co., Ltd. ; asphalt, The Rock Asphalte Co. ; Durasteel doors, Durasteel ; electrical installation, Lee Beesley and Co., Ltd. ; external rendering, Modern Surfaces, Ltd. ; faience tiling, Carter and Co. (London), Ltd. ; fencing, Bayliss, Jones and Bayliss ; goods lift, J. and E. Hall ; metal windows and glazed metal screen, Mellowes and Co.

Granolithic pavings, The Empire Stone Co. ; heating installation, The Hobdell Engineering Co., Ltd. ; ironmongery, Parker, Winder and Achurch ; metal balustrades, Potter Rax, Ltd. ; piling, The Piling and Construction Co., Ltd. ; "Rigifix" inserts, Huntley and Sparks ; sanitary fittings, Stitsons Sanitary Fittings ; steel lockers, Fisher and Ludlow ; steel staircase, Haywards, Ltd. ; spirit tanks, The Wayne Tank and Pump Co. ; sprinkler installation, The Atlas Sprinkler Co. ; steel roller shutter, Geo. W. King ; tile pavings and terrazzo, Zanelli (London), Ltd.



Cantilever reinforcement frames for concrete canopy over loading bay.

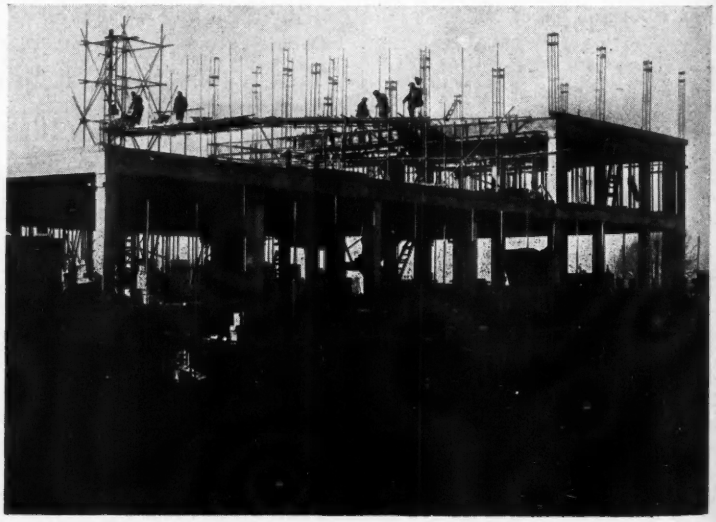


Typical connections between secondary and main reinforcement beams partly completed.

When the frame was erected, shuttering was placed around the reinforcement, and concrete pouring could proceed at once. It was noted that the reinforcement erection was speedy and kept well in advance and out of the way of the concreting work.

Since the reinforcement frames were made and welded up in the shops to details prepared in the drawing office (again similar to structural steel) the possibility of displacement of rods after erection was practically eliminated. Special connection pieces were provided at junctions to ensure that each beam was placed in its correct position and special clip bolts were used for securing beams to columns.

The building work was commenced in the autumn of 1950, and continued throughout one of the wettest winters on record. The building was completed to schedule despite the restricted site conditions, the general shortage of



A later stage in the construction.

fall
the
the
l.
vere
td.,
ent
the
and
of

Co.,
Co.,
Co. ;
stal-
ernal
lling,
cing,
nd E.
reen,

Co. ;
ering
and
Ltd. ;
Ltd. ;
arks ;
ings ;
stair-
Wayne
ation,
utter,
razzo,

orce-

CHURCH BUILDINGS

Problems of the New Housing Estates

By B. S. TOWNROE, OBE, Hon. ARIBA

A REPORT has recently been issued by the Church Assembly on the work of the Church of England in new housing areas. This contains much information likely to be of interest to architects and builders in many parts of the country.

Already many dioceses have been able to negotiate the allocation by local authorities of sites on a housing estate suitable for a church, a hall and a vicarage. In many cases sites have already been conveyed, or are in course of conveyance, and in others suitable sites are being reserved. The price of the land has naturally been a matter of long negotiation, but in certain cases the Minister of Housing and Local Government is understood to be willing to approve of the disposal of sites for church buildings at a quarter of housing value.

One of the immediate difficulties has been to find a place where the local clergy can live. In some dioceses the local authorities allocate one of their houses to a married clergyman working in the immediate area. The London County Council, for instance, is generally willing to let an estate house on a yearly basis until such time as a licence for an official residence can be obtained. An approach is now being made to Mr. Macmillan to ask whether this practice could be extended. Already some vicarages have been built at a cost of between £3,500 and £4,500.

The next problem is providing temporary buildings for services and meetings. In some cases rooms in schools are let on Sundays. In another case, a builder's canteen, a garage and an old recreation hut are being used. It is now found possible to erect temporary prefabricated buildings with seating accommodation for 100 people at a cost of £2,000.

DUAL-PURPOSE BUILDINGS

The pamphlet also publishes a number of interesting plans of halls, designed to provide places for worship, instruction and social activities. These are for permanent buildings, and licences are very difficult to obtain in sufficient numbers, and the cost is three times what it was in the inter-war period. For this reason the idea of building church halls, which can be divided into two parts by a folding screen, is coming more and more into favour. One part is furnished as a church and remains as such. The remainder can be used for all kinds of social activities and in case of need the " church " can be enlarged by folding back the screen. One plan which includes accommodation for 90 worshippers, a main hall, kitchen and cloakrooms, is estimated to cost £13,000. A simpler plan to include both church and social hall as a single unit costs £11,000. This plan is drawn in such a way that both church and hall can be enlarged, as and when required, at a reasonable cost.

The Church Commissioners are rendering an invaluable service in making interest-free loans for half the cost of a building, with a maximum loan of £5,000. These loans are repayable by regular half-yearly instalments over a period of 20 years. Already 38 dioceses have availed themselves of these facilities.

It is, in fact, clear that the Church of England is alive to the necessity of providing for the new housing estates in which over 3m. persons have been rehoused since April 1, 1945. This is presenting the Church of England with a problem which will tax to the uttermost its resources of man-power and money.

REPAIR OF ANCIENT BUILDINGS

Course for Architects at York

THE Academic Development Committee of York Civic Trust are to hold a two-week residential course on the Protection and Repair of Ancient Buildings at York from September 8 - 20. It will be under the direction of Dr. W. A. Singleton, M.A., B.Arch., Dip.T.P., A.R.I.B.A., A.M.T.P.I., A.I.Struct.E., of the University of Manchester, and will be intended primarily for practising architects, surveyors, builders and others whose work requires specialised knowledge in this field.

The Gowers Report on Houses of Outstanding Historic or Architectural Interest stated: " One of the most serious problems connected with the care of ancient buildings is that of procuring expert architectural advice and specialised craftsmanship. It is not every architect who is qualified to care for old buildings, and the craftsmen versed in the skilled techniques are rarer still." The course to be held at York has been designed as an initial step towards remedying the present deficiency.

Lectures will be given on the following aspects of protection and repair: Status of architects and consultants, and their relationship with the various types of public and private owner; building techniques employed from Saxon times till the early nineteenth century; methods of survey; maintenance and repair work; problems met with in individual crafts such as masonry, brickwork, etc.; geological consideration of sites; services; relations with official and consultative bodies; bibliography of suitable books, films, drawings, etc.; and contracting and costing for repair work.

Practical study will occupy a third of the time spent on the course and students will have the opportunity to survey a building needing attention and to make their personal recommendations, which will then form the basis for a general discussion.

It is hoped to repeat this course in the spring of 1953 and to supplement it by a series of one-week courses during the same year. Each one-week course will be devoted to preservation and repair work in one of the main building materials—e.g., stone, brick, timber, etc.—and will include both theoretical and practical study. These specialised one-week courses are intended to supplement the two-week general course so that the whole will form a comprehensive course of study which may be taken over a period to suit individual requirements.

The 1952 course will provide for a maximum of 20 students. A detailed syllabus will be available in March. Further inquiries should be made to The Secretary, Academic Development Committee, York Civic Trust, 1, Museum-street, York.

REPAIRING OLD CHURCHES

The Need for Expert Advice

THE Central Council for the Care of Churches have issued a statement, through the Church Information Board, calling attention to the need of obtaining expert advice when even quite simple repairs are required to the fabric of ancient churches.

Those of us who have the care of old churches have regretfully to realise, says the statement, that in the past 20 or more years there has been such a revolution in modern building materials and methods that the average architect and builder no longer *needs* to be familiar with the materials and methods which were in use when our ancient, and indeed when most of our nineteenth-century churches, were constructed.

To the present-day builder, cement is almost the staff of life, his remedy for a dozen ills, the statement continues. But only in special circumstances, and then only under skilled control, ought a cement-bag ever to be carried into the churchyard of one of our old flint or stone churches. So, although of course any skilled tiler can replace our missing tiles, and any skilled painter can deal with our rainwater pipes, so soon as the fabric itself needs any repair recourse simply must be had to those who have had the special training and experience which enables them to prescribe for these ancient buildings, which all require treatments no longer in everyday use.

To give just one or two instances where this need may not seem immediately obvious, take the pointing of walls. Every church built in stone needs, at regular intervals, repair to the joints between its courses of stones. If we merely send for the nearest builder to do this, he will almost surely (left to himself) do this work in cement (as he does every day at his normal job), probably finishing it off with his trowel in hard, raised lines. But by this simple routine job not only can the whole external appearance of the loveliest old church be ruined, but the soundness of its walls can be ruined, too. The cement sets too hard to unite with the stone, and a chemical action is also set up, so that within quite a short space of time the pointing will work loose from the wall, water will get behind, and the wall will soon be in worse case than ever. The builder must use a good lime-mortar, made with clean sand and finished with a stick or piece of sacking; then there will be a sound, strong wall with a beautiful surface.

Care of Timber Work

In timber work the same argument applies also. Even where, say, beetle-attack has eaten away the surface of ancient rafters or beams, what remains, if it be of oak almost as hard as iron from age and seasoning, is in fact far stronger than a modern 4 in. by 2 in., and is still well able to carry the weight of a roof. Yet over and over again inexperienced architects or builders have discarded ancient timbers wholesale; these could have been retained or could have been re-used by scarfing on new wood to replace rotted ends. The employment of a competent, experienced man's advice is nearly always in such cases a true economy, for he will save many times the value of his own fee. Finding the right architect, and the right builder, who have specialised in the care of old buildings is not always easy, but the secretary of the Diocesan Advisory Committee can supply a list on request.

HEAT INSULATION OF SMALL HOUSES

Relative Costs and Advantages of Different Structural Materials

By S. F. NEWCOMBE

In the belief that the achievement of "comfort at least cost," and not consideration of arbitrary space standards, should be the object of the designers of houses, our contributor has prepared the following notes on heat insulation and the utilisation of space in small dwellings.

MUCH heat escapes from the walls of normal houses, but losses can be greatly reduced by the use of certain non-traditional materials and methods of construction. First let us consider the walls from the point of view of strength. The external wall to a two-storeyed house, 16 ft. high, with a central wall, giving 10 ft. to 12 ft. width for rooms, will be of adequate strength if built of 4½ in. to 6 in. brick or 4 in. concrete, tied at 7 ft. 6 in. height by floor joists. Perhaps prestressed concrete floors of 20 ft. to 24 ft. length could tie the outer walls, supported by the centre wall, thus acting partly as a cantilever and so giving the required strength at a reduced cost. The cost of such walling is (*a*) £1 per sq. yd.

The walls may be rendered impervious to damp by two coats of hot bitumen or tar, or by two-ply bitumen roofing felt at 1s. 10d. S.O., or 2s. 6d. fixed. Say, (*b*), 1s. 6d. per sq. yd. for hot bitumen.

Insulation can be provided by 2-in. slagwool (12 lb. cub. ft. at 3s. per sq. yd. S.O., or (*c*), 4s. fixed) or 4-in. house insulation fibreglass at 1½ lb. cub. ft. compressed to 2 in. at 3 lb. per cub. ft, at 3s. 4d. S.O., or (*c*), 4s. per sq. yd. fixed. This cost is shared with the inside covering of the walls, plasterboard, the total cost, with fixing and plastering with a skim coat, working out at (*d*), 9s. 4d. per sq. yd., plus, for battens for fixing, a further 2s. 2d. per sq. yd. Alternatively (*e*), thick aluminium foil, .004 in. thick, at 1s. 9d. per sq. yd., plus, for battens for fixing, a further 2s. 6d. per sq. yd., may be used; or plasterboard with foil on one face, which adds to (*d*), 1s. 6d. per sq. yd. (*f*).

From the above, the calculations shown in Table I may be compiled.

These estimates of cost are rough, but impartial. Item (2) gives the best value at least cost if people will accept a thick aluminium foil surface for walls and ceilings. The conductance and the heat capacity of the inner lining are low, and it is dry and damp-proof, with low emissivity: therefore the surface will warm up very quickly directly one enters a room and turns on the heat.

Item (4) will take a long time to heat up, especially in wet weather when the concrete will be damp and hence use up latent heat to dry it. All U values may vary by 50 per cent. or more from the figures obtained from tests at either the Building Research Station, or, especially, from the National Physical Laboratory tests. Thus U values of (4) and of (2) may rise from .2 and .095 to .3 and .14 in the coldest times of the year when good insulation is most needed; the damper the walls are, the more heat and time is wasted in warming the rooms.

The air space between the brick and "No-fines" concrete costs about 3s. per sq. yd. (see W.D. Schedule 1948, items 351 and 365); its object is to keep out damp, but it does not, it only reduces damp. Hot bitumen is far more effective at less cost.

Once the B.R.S. have tested and proved items (1), (2) or (3) manufacturers will supply the above, or similar material, to meet demand.

Aluminium is in short supply to-day, but is likely to be plentiful in a year or so, when the B.R.S. tests are completed; a short present-day supply is no reason to stop research.

I saved considerably on first cost, and probably on fuel and increased comfort by adopting the principles of items (1), (2) and (3) in some quarters at Malta in 1930, and the house, with rooms 9 ft. high and 6-in. walls, withstood blast from bombing.

ROOF INSULATION

Pitched roofs cost more than flat roofs, but their added cost may be justified for the sake of appearance, according to the locality. But in any case, the principles of insulation remain: make the inner lining of the ceiling damp-proof from above, with low conductance and heat capacity and vapour proof from below. Low emissivity can also be obtained if the use of aluminium foil as a surface to the ceiling is considered permissable. Tiling needs only to be weatherproof. The air in the attic would normally be almost still, and at about the same temperature as the outside air.

The costs, and insulation values, which are only approximate, relate to the flat roof, and are set out in Table II.

By adding 5s. 6d. to £3 10s. 6d. to make (m) we reduce the conductance of the inner lining of 2 in. from 4.0 B.T.U. to 0.14, and the heat capacity from 5 to 0.5 B.T.U. and provide a vapour-proof inner surface with low emissivity.

The same principle applies to ceilings with a pitched roof. Asbestos cement (which is cement compressed and reinforced by an inert fibre with tensile strength) provides the cheapest; insulate the ceiling, damp-proof on top with 4 in. fibreglass and aluminium foil below, or other equally suitable material, to give a conductance of U 0.1.

Aluminium foil costs about 3s. per lb. at .008 in. thick and 1 lb. covers 1 sq. yd.; the cost is 3s. 6d. per lb. for .0008 in. thick foil, and 1 lb. will cover 10 sq. yd. The price fixed complete would vary with the thickness of the foil and the distance apart of battens to carry it. Perhaps a combination of foil, slagwool or fibreglass is needed to reduce cost "fixed complete" and provide the required qualities.

SITING OF APPLIANCES

The siting of appliances needs careful study. Radiant heat should always be directed at the person or object to be heated, and downwards to the floor, never at a window, through which the heat units pass unused; nor at the ceiling, thence to go out of the window or to heat air above the person.

The places where people can sit in a room are few and heat units should be directed to such places. For example, reflectors behind radiant heaters under tables and desks may supply ample heat where needed (if draughts are prevented), perhaps with the aid of screens of aluminium foil with low values of emissivity.

Keep heating appliances away from outer walls, but store unused heat units

TABLE I.

	£ s. d.	Including air surface conductance and 4½-in. brick.* U.	Including air surface conductance and 4½-in. brick.* C.	Including air surface conductance and 4½-in. brick.* c.	Omitting air surface conductance and 4½-in. brick.* U.	Omitting air surface conductance and 4½-in. brick.* C.	Omitting air surface conductance and 4½-in. brick.* c.
(1) a + b + c + d = £1 + 1s. 6d. + 4s. + 11s. 6d.	1 17 0	.11	0.13	0.6			
(2) a + b + c + e = £1 + 1s. 6d. + 4s. + 5s.	1 10 6	.095	0.11	0.1			
(3) a + b + c + d + f = £1 17s. + 1s. 6d.	1 18 6	.1	0.12	0.6			
(4) 4½-in. rustic fletton brick: 2-in. cavity, 4-in. clinker block or "No-fines" concrete inner skin	£1 15 2	.2	.28	5			
Plastered internally, Sirapite	0 5 0						
	2 0 2						

* U = No. of B.T.U. /h. /sq. ft. .1 deg. F. lost from inner to outer air surface.
C = No. of B.T.U. /h. /sq. ft. .1 deg. F. lost from wall surface to damp-proof layer.
c = heat capacity of materials per sq. ft. from wall surface to damp-proof layer, i.e. no. of B.T.U.s absorbed by 1 sq. ft. of the material per 1° rise in temperature.

TABLE II.

	Cost per sq. yd. £ s. d.	U	C For 2-in. thickness of inner lining.	c
Assume a 6-in. prestressed concrete roof with a fine concrete screed, and 2-coat asphalt, laid on felt. Fixed complete	3 3 0			
Sirapite plastering and hacking soffit for key (f)	7 6			
(k)	3 10 6	.48	4.0	5.0
Replace (f) by battens plugged to soffit 4s. 0d.				
Add 1-in. fibreglass and fixing 2s. 9d. (g)				
Add ½-in. plasterboard and plaster single coat and skim coats 9s. 3d. (h)				
Then k − f + g + h = (l)	3 19 0	.15	.18	4.0
Replace (h) by foil .003 in. thick 1s. 9d.				
Add Fixing 4s. 6d. (j)				
Then l − h + j = (m)	3 16 0	.12	.14	0.5

For explanation of U, C and c see footnote to Table I.

in water cylinders, concrete floors, inner flues and walls.

SUGGESTIONS TO SAVE COST IN HOUSE CONSTRUCTION

Rainwater and soil pipes can be in 10-ft. lengths, if of asbestos cement, and can often be shared in houses, as they are in flats, an arrangement that also saves drains.

Not enough use is made of picture rails and dado rails for horizontal ties.

Roads on housing estates require no camber and hence a drain on one side only. If 60-ft. highways have widths of 30 ft. with one slope of 1 /30, then a camber for a 30-ft. width is not needed.

The Builder of December 21 last quotes the following "essential qualities expected in a dwelling" from "A Comparative Study of the Utilisation of Space" in 14 different countries:—

(1) Economy in planning overall size; (2) each room: size to suffice for its purpose; (3) full use of all space provided; (4) circulation space reduced to minimum; (5) dwelling to be livable: i.e., congenial, healthy, well-lighted, ventilated and easily worked. These items form the basic ground for the detailed analysis of the report.

SAVING SPACE

If doors for kitchen, bathrooms and lavatories open into passages, and for bedrooms onto landings, space may in some cases be better used or saved.

Sliding doors or fabrics or plastics on rails may save space for cupboards, and perhaps the cost of timber and paint. Sliding doors for railway carriages save space: why not in houses?

W.C.'s need not exceed 2 ft. 6 in. by 4 ft. 6 in.; any space saved would be more useful in the hall.

Need the kitchen, with sink, cooker and flap table, exceed 7 ft. by 6 ft. if used only for cooking and washing up, especially if the door opens outwards? There is less space for cleaning and for heating quickly, and some people prefer to use the saved space elsewhere.

Curve the corners of ceilings and floors; it may add to strength and cleanliness.

Comfort at least cost is the object, not a definite space. The siting of heating appliances away from outer walls and windows to retain heat and reduce draughts, correct height and site of shelves, utensils and lights, matter more than space; compare a cookhouse in a yacht or dining car.

Lagging *domestic* hot-water pipes and cylinders is essential and can be done by any handy man, applying 1 in. bitumen bond fibreglass or 1 in. slagwool (10 lb. cub. ft.) both about 1s. 4d. to 2s. per sq. yd., and, where necessary, covering with aluminium foil .003in. thick (about 1s. 6d. sq. yd.), or thicker if need be.

For plumbing purposes plastics and preformed sections cost far too much, and there is no evidence yet available to prove that the latter are more efficient for temperatures from 200 deg. down to 50 deg. F.

If water is heated by electricity, which costs 3s. 8d. per therm at the average price of 1.5d. per unit, hot-water pipes and cylinders require 2 in. or even 3 in. of lagging as above.

WHOLE-HOUSE HEATING

Results of Extensive Tests with "Open-plan" Houses

RESULTS of an investigation into the whole-house heating of "open-plan" houses which has been carried out by the Ministry of Fuel and Power in collaboration with certain local authorities and the Building Research Station, were described at a meeting of the Institute of Fuel (held at the Institution of Mechanical Engineers, Storey's-gate, S.W.1), on February 19, when MR. F. C. LANT, A.M.I.H.V.E. (of the Ministry of Fuel and Power), and DR. J. C. WESTON, Ph.D., M.I.H.V.E. (of the Building Research Station), presented a joint paper entitled "An Investigation of Whole-House Heating."

The investigation arose originally as a result of a mission to North America from this country in 1944-45, which was impressed by the possibilities of whole-house heating with a single central-heating unit, as practised in America, particularly when associated with a relatively "open" plan in which the kitchen is the only enclosed room on the ground floor; hall, living space and dining space forming a single room from which the staircase leads direct to the upper floor. The mission reported on "the importance of staging in this country a large-scale demonstration of the different methods of heating the whole house." A number of demonstration houses were subsequently erected, and extensive tests on heating methods have been carried out.

After examining in detail the many aspects of the problem of whole-house heating, the authors summarised the conclusions to be drawn from the investigations as follows:—

The data so far reviewed have shown that where whole-house heating either by warm air or radiators is provided in houses of around 950 sq. ft. floor area, the mean house temperature averaged over the winter will be about 62 deg. or 63 deg. F., and the temperature-difference between the inside of the house and outside 17 deg. or 18 deg. F., compared with about 12 deg. or 13 deg. F. in houses with more conventional heating arrangements. Bedroom temperatures are around 60 deg. F., compared with 55 deg. F. in houses with nominally unheated bedrooms. The higher living-room temperature of the houses with radiators or warm air has been commented upon, and the small difference between thermal input and cost for these houses and those with conventional systems has been noted. At the same time attention has been drawn to the fact that with conventional heating systems lower thermal inputs can be tolerated, and this suggests that where whole-house heating is used in houses of this size it should be restricted to tenants who are not subject to excessive economic constraint.

So far no reference has been made to the capital cost of whole-house heating. Whilst detailed data are not available, it is possible from the estimates made of the cost of the heating systems in the houses at Abbots Langley, i.e., those built by the B.R.S., to give a broad idea of the capital cost. On this basis the cost of the heating system, including appliances, flues, hot-water system, etc., is likely to be around £250 compared with £100 to £150 for conventional arrangements. This suggests that whole-house heating is more suited to larger houses of, say, 1,250 to 1,500 sq. ft. floor area, since the higher capital cost, which is unlikely to increase in proportion to the area of the larger house, will be a smaller fraction of the total cost. By limiting the extent of the heating, e.g., by providing radiators in downstairs rooms only, it should be possible to reduce the capital cost to something not greatly in excess of the cost of more conventional arrangements, but it must be remembered that where an open plan is used the bedroom temperatures will necessarily be higher than with conventional plans, even though heating equipment is only provided on the ground floor. Heating appliances and equipment of a sufficient size to supply the required heat upstairs must, of course, be provided.

Houses of Smaller Area

Another application of the open plan (and whole-house heating) appears to be in houses of smaller area, say, around 850 sq. ft. The use of the open plan in reducing passageways, etc., provides more useful space in a house of given superficial area. At the same time a smaller house enables the running costs to be reduced, and on the basis of the data available it would appear that a house of open-plan design and of area, say, 850 sq. ft., could be run to the same temperatures as the larger houses discussed in this paper, at an average cost of 13s. per week and a minimum cost of 11s. to 12s. per week. This compares reasonably with the minimum costs with conventional systems in houses of 925 sq. ft. area.

In conclusion, there is the question of tenant reaction to whole-house heating. From the investigation at Abbots Langley it is clear that tenants who are economically constrained cannot afford and, therefore, do not like whole-house heating. Of the remainder the majority are satisfied, but their satisfaction frequently depends on the addition of some form of radiant heating, usually an electric fire. Finally, there are those who definitely do not like convection heating for a wide variety of reasons other than economic ones. In this connection the recent report on tenant reactions to the heating systems at Abbots Langley serves to bring whole-house heating into focus in relation to other methods. In the report "House Heating and the Tenant"* it is shown that the tenants at Abbots Langley could be divided into three main categories, as follows:—

Group 1. Comprises those families who are content to have sitting warmth (air temperatures around 70 deg. F.) in the living room only, and background warmth (45 deg. to 50 deg. F.) throughout the rest of the house.

Group 2. Comprises those families who want sitting warmth in the living room, working warmth (60 deg. to 65 deg. F.) in the kitchen, and are content with background warmth in the bedrooms.

Group 3. Comprises those families who want sitting warmth, or at least working warmth, throughout the whole house.

It is concluded in that report that it is possible to cater adequately for families in Groups 1 and 2 by the installation of an open fire with sufficient back-boiler capacity to provide, in addition to the domestic hot water, enough radiator area to give working warmth in the kitchen, or kitchen and dining recess, and a towel rail in the bathroom. The families in Group 3 are those who would best be satisfied by some form of whole-house heating. Although only 22 families are included in this survey of tenant reactions, they have the marked advantage of having experienced on the experimental

*Green, R. G., and Milroy, E. A. House Heating and the Tenant. *J. Royal Inst. Brit. Arch.* In the press.

housing site a number of widely different forms of heating, and although the percentages within Groups 1, 2 and 3 cannot be taken as representative of the country as a whole the proportions are unlikely to be grossly in error. Of the 22 families, three fall into Group 1, 14 into Group 2 and five into Group 3; and two of the families, one in Group 1 and one in Group 2 would, if economic circumstances permitted, be found in Groups 2 and 3. This gives some indication of the proportion of families for whom whole-house heating is appropriate, and the report concludes: "When a housing authority wishes to equip a few of its houses with whole-house heating (or two solid-fuel appliances), it should ensure that these houses are occupied only by families whose economic circumstances, as well as their preferences, allow them to have the whole house heated. Greater hardship results from putting a family which cannot afford to heat the whole house into such a house, than from putting a family which prefers a house which is warm throughout and can afford to pay for the heating into a house with a modern open-fire warming only the ground floor."

To some extent the building of smaller houses may increase the proportion favouring whole-house heating, but, clearly, whole-house heating is appropriate only for a small proportion of the prospective tenants of local-authority housing.

A PALLADIAN HOUSE

MARBLE HILL, TWICKENHAM

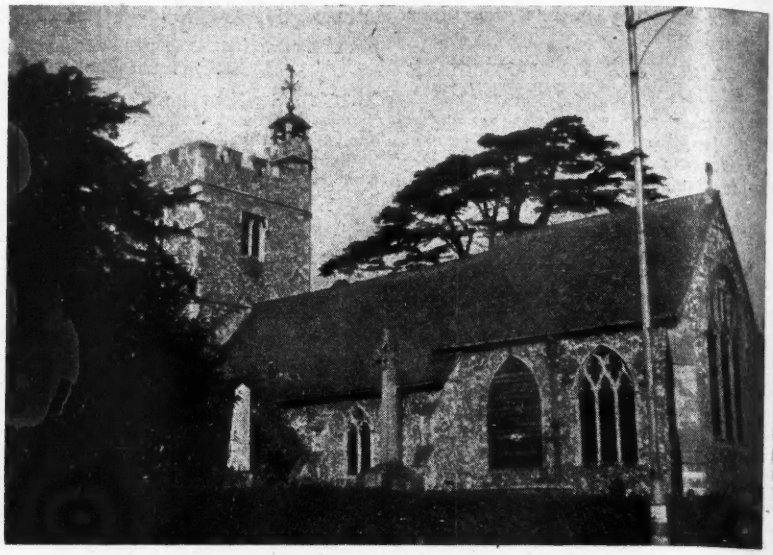
A NOTABLE example of the smaller type of English Palladian house (an object of considerable rarity) is Marble Hill House, Twickenham, which was built about 1723 to the design of Lord Pembroke and Lord Burlington, and which to-day is the property of the London County Council who have recently issued a descriptive pamphlet on it.

The building is of three storeys with attic rooms in the roof. The exterior is stucco-finished and has a partly rusticated ground floor supporting Ionic pilasters on the entrance front.

The mahogany staircase between the ground floor and the first floor is of considerable dignity and richness of design. It is unique by reason of its finely carved newel posts, closed "string," handsome panelling and above all its massive carved balusters which are evenly spaced on the Italian plan instead of being grouped in the usual manner with two or three slender balusters to each tread. It is also remarkable from the fact that it is of solid mahogany throughout. Mahogany, too, is used for the floorboards and doors of all the rooms on the first floor. With the exception of Houghton Hall (built for Sir Robert Walpole in 1723) it is the earliest and finest example in England of the use of mahogany for structural work.

On the first floor, looking towards the river, is the largest and most important room, the salon. The whole of the elaborate applied ornament, including the beautifully modelled life-sized cherubs, upon the pediment above the overmantel is the work of English wood-carvers, and is probably the most sumptuous example of English wood-carving of this date in existence.

Marble Hill House is open to the public during the summer months, and at other times by special arrangement.



Harlington's Norman Church (A.D. 1081) *and giant 1,000-year-old yew tree.*

SAXON ARCH AT HARLINGTON

A Long-Hidden Treasure

By A. LEONARD SUMMERS

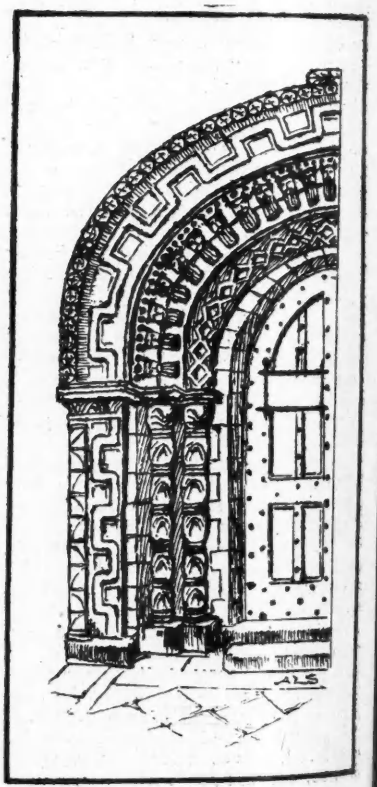
AN architectural feature of great interest which for hundreds of years has been almost hidden from view in the dark shadows of a seventeenth-century porch (no doubt erected for the purpose of protecting the cherished sculpture) is a noble arch, an impressive example of Saxon artistry, surrounding the south door to the parish church of St. Peter and St. Paul in the village of Harlington, Middlesex.

This arch (A.D. 400-600)—considered one of the finest specimens existing—measures 11 ft. in width and 13 ft. in height; it reveals exquisite workmanship and a wealth of detail in a fair state of preservation although almost black with age, and constitutes ornamentation which any church, or cathedral, should be proud to possess.

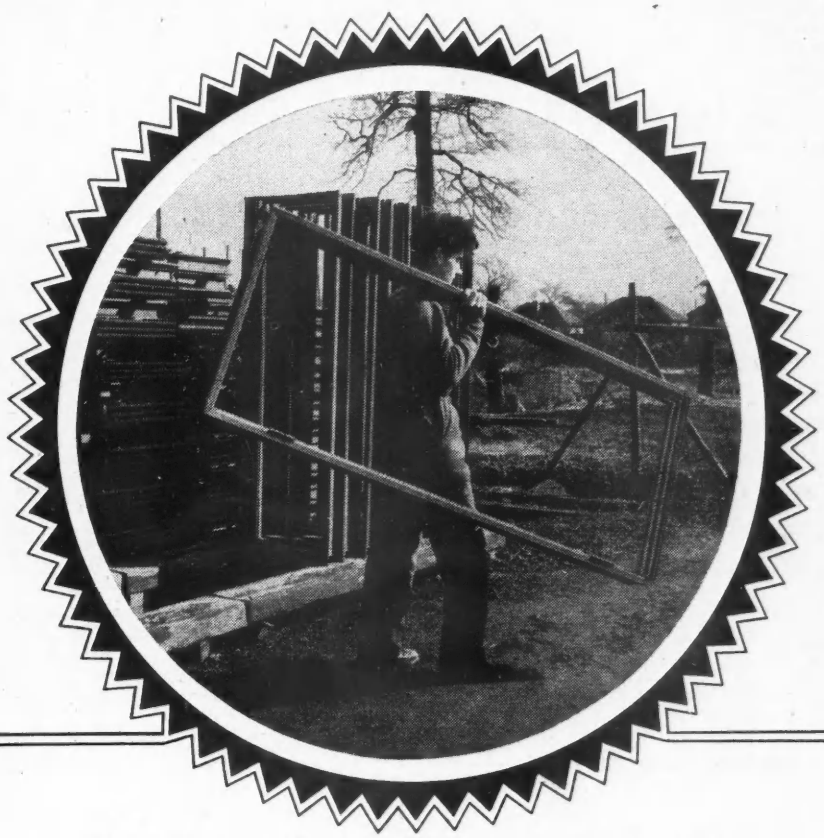
The ancient church of SS. Peter and Paul is itself an excellent example of Norman flint construction, with records dating from A.D. 1081. Its first rector, the Priest of Herdintone, was appointed in 1086. But that a much earlier edifice existed on the site, the Saxon arch bears witness. The parish register dates from 1540. In addition to its handsome Norman windows and various grand memorials, this church possesses another distinctive feature, its famous giant yew tree—"one of the great trees of England"—to which poets and painters have from time to time paid tribute. This wonderful old tree must have been seen by the Conqueror's men during the Domesday survey, being well over 1,000 years old. It was officially measured about 30 years ago and found to be 50 ft. high, and its girth (2 ft. from the ground) was over 20 ft.

Among past patrons of this church were the great De Salis and Bennet families. Sir Henry Bennet (raised to the peerage in 1672 becoming Earl of Arlington) was a member of the notorious "Cabal" Ministry. One of its most celebrated rectors, John Kyte (1510), later became Bishop of Carlisle and was a friend of both Cardinal Wolsey and Henry VIII, whom he accompanied to the "Field of the Cloth of Gold."

Another rector, Dr. Joseph Trapp (1670-1747), was a playwright and "gained much reputation among the wits," we are told.



The Saxon arch at Harlington: half-section showing the elaborate detail of design.



HOPE'S STEEL DOOR FRAMES

ARE NOW AVAILABLE FOR

QUICK DELIVERY

Send for illustrated literature: HENRY HOPE & SONS LTD
SMETHWICK, BIRMINGHAM & 17 BERNERS ST. LONDON, W.1

BUILDERS SINCE 1786

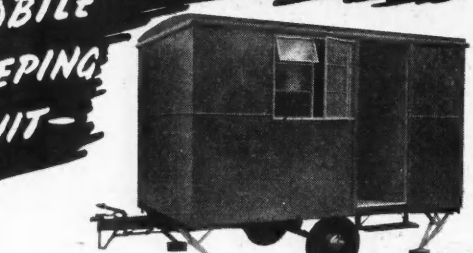
Y. J. LOVELL & SON LTD

GERRARDS CROSS • LONDON, W.2

BUCKS:—
HIGH WYCOMBE • MARLOW • BEACONSFIELD

SUSSEX:—
EASTBOURNE • HORSHAM • EAST GRINSTEAD

SITEMASTER MOBILE SLEEPING UNIT—



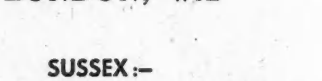
The SITEMASTER MOBILE SLEEPING UNIT

STEPHENSON DEVELOPMENTS (HUDD) LTD.

Length 12'. Width 7' 6". Height 6' 8" inside. Four Berth and fitted with wardrobe, stove and hand basin with cupboards above and below. Price from **£290** ex works.

Send for full details of this and other models.

Grosvenor Works, Linthwaite, Huddersfield. 'Phone and 'Grams: Slaithwaite 341/2 (2 lines)
London Office and Sitemaster Display—Ludgate Gardens, Ludgate Hill, London, E.C.4. Telephone: City 2528



Safer houses

NOT ONLY HOUSES but flats, shops, offices, garages, warehouses, depend for their security on the locks you fit. If you fit Chubb anti-burglar locks you may well earn the gratitude of future owners.

Chubb make the world's best locks

These locks have been famous for 130 years. They are immensely strong, they cannot be beaten and they are available in various types for all purposes.

We will gladly send you fuller details if you will write or telephone. Chubb & Son's Lock and Safe Co. Ltd., 40-42 Oxford Street, London, W.1. Telephone MUSeum 5822.

FIT **CHUBB** LOCKS

BUILDING AND PUBLIC WORKS CONTRACTORS

CIRCLE

CONSTRUCTION CO. LTD.

CIRCLE HOUSE
65-71 WEMBLEY HILL ROAD
WEMBLEY

'Phones: WEM. 6211 (5 lines)

THE INFLUENCE OF DESIGN ON PRODUCTIVITY

Current American Practice Described at the RIBA

LESSONS that the architect, contractor and others concerned with building in this country might usefully learn from an examination of current American practice were described by MR. L. W. ELLIOTT, A.R.I.B.A., A.M.I.C.E., in a paper on "The Influence of Design on Productivity," which we reproduce below in slightly abridged form, at a meeting of the Royal Institute of British Architects in December last. Mr. R. E. Enthoven, vice-president of the R.I.B.A., was in the chair. Mr. Elliott said :—

During 1949 representatives of the building industry visited the United States to report on the organisation, constructional techniques and industrial outlook of the building industry there and to draw comparisons between American and British practice. A very fine report was produced and I hope that we have all digested it and applied where possible the recommendations made. I was extremely fortunate in being able to visit the United States recently and was particularly interested in the extent to which the actual design of buildings affected productivity ; I felt that however much efficiency one had on the constructional side, the largest single factor contributing to efficiency was design. The average American architect is imbued with the highly competitive spirit of the country and he knows that he is a member of a team charged with producing an efficient building. His success is not purely mercenary ; it consists also of a sense of collaborative achievement—of knowing that everyone is satisfied, including the actual operatives on the job.

Apart from the architect there is another factor influencing productivity in the States, and that is the operative. As one architect put it to me, "Labour is expensive, partly because of high wages and also because it is a variable factor, so that the aim is to use as little as possible and to use it efficiently. It is much more reliable to use a machine, and, if labour is used, to make it as foolproof as possible. The use of bricklayers on straight runs, plasterers on clear areas and carpenters on repetitive work is essential for speed."

UNINTERRUPTED PROGRESS

Every project I saw was extremely well thought out constructionally and one was never aware of any complicated detailing which was likely to delay progress. Trades were never intermingled—each man could start on his job knowing that he would have uninterrupted progress, which as we all know is not the case in this country. This principle, however, is the key to speedy building — one cannot hope to organise a building job using differing methods and materials to any great extent, because that does not permit labour or plant to be used efficiently.

One great advantage in America was that even on the majority of important projects the contractor was consulted at the beginning, and in fact became a member of the team responsible for the execution of the building. I often came across cases where the architects had designed a system of construction which was not in any sense orthodox, In some cases these jobs were sent out to limited tender and invariably prices were far too high in the architects' estimation. It was only when a contractor was approached directly and the whole scheme was explained to him and advantages or savings in construction time were argued out, that the job went on at all ; and in most cases costs were much lower than when tenders were called for.

The majority of jobs where this occurred consisted of those where new systems of cladding, or — for example — the use of welding was called for. In some congested sites such as New York it was absolutely essential that the contractor be appointed at the commencement of the design, because it was due to his foresight and knowledge that the whole sequence of operations was planned so that the minimum obstruction to traffic or the storing of materials on the site was overcome. I am afraid that in this country we are never going to build quickly unless we overcome this problem of joining up with the contractor at the sketch plan stage of the job. It is all very well that an architect sets out an interesting system if it is eventually described in the bill of quantities in a quantitative way. Such items in a bill of quantities as "so many yards of concrete floor" or "so many feet super of brickwork" are not always related to the actual way in which the items are to be built, and the contractor cannot tell very often whether he can use plant or some movable system of formwork.

WORKING WITH THE CONTRACTOR

If it is difficult for contractors to be consulted in this country then we must try to find a way to make them realise how the job can be organised. This might be done by the architect and quantity surveyor in the following way :—

The architect can prepare diagrammatic erection drawings, apart from the normal contract drawings. This has to be done on many occasions, especially where prefabricated or standardised systems of construction are used. This will enable the architect to plan the construction and to see that sections of the work can be carried through without too many trades being dependent on one another. These erection drawings should be sent to the contractor at the tendering stage, together with enough working drawings and a full descriptive specification to enable him to price the job, bearing in mind the methods of erection. Each contractor should then be required to submit with his price a report on the actual way he proposes to carry out the work. This would give the contractor a much greater chance to use his ingenuity and also to plan the operations more precisely.

The quantity surveyor should also be consulted on matters more directly concerned with the economy of building. It is my view that the present bill of quantities should be modified, especially since there is now a greater tendency to use specialist sub-contractors. The actual P.C. and provisional sums now seem to be about half the value of the job and are usually dealt with by the architect, so that the quantity surveyor is only responsible for the work actually carried out by labour on the site and measured in accordance with the standard method of measurement. The contractor merely translates these measurements into costs in a fairly uniform way by an estimator on his staff. This estimator is not directly concerned with possible methods of building but is only familiar with current prices of materials, wages and the contractor's overheads and profit. The American method relies on the contractor taking off his own quantities from drawings and specifications, and has much to commend it, because the contractor's skill, knowledge and organising ability are brought fully into play.

I should not like to see the bill of quantities disappear in this country, but it can be made a more realistic document and the quantity surveyor should be used much more and consulted on methods and costs of carrying out the work.

It is also becoming important to use alternative methods of construction even if the cost appears higher than traditional work, because the longer a job takes the more prices are increased, especially now that the trend is for costs both in labour and material to be constantly rising. Perhaps still greater specialisation is the answer, so that the contractor is left free to progress the job and supervise the subcontractors.

EDUCATION

In the course of my investigations I examined the educational system of American architects and visited a wide range of schools and talked with the students and teaching staff. At Harvard great emphasis is placed on the study of what they call humanities allied to the graduate school of design under Walter Gropius. I felt that the system here was much like our Architectural Association School and provided a liberal education. Also, in Cambridge near Boston was the Massachusetts Institute of Technology, where more emphasis was placed on the techniques of building.

One of the great points of these institutes of technology was the contact and training with other students in departments connected with all branches of building and mechanical engineering. One important feature of this particular school was the holding of what they call course conferences devoted to particular aspects of building. These conferences were continued for perhaps a week, with informal lunches and cocktails, and what distinguished them was that really top people freely gave their time, not in a patronising manner but on an equal footing with the students.

I also visited the Illinois Institute at Chicago, where the architectural department was under Mies van der Rohe. The teaching there, however, is quite different, with studies much more fundamental. The student is primarily equipped with the tools of his profession—he must be a painstaking draughtsman, he must be able to

arrange simple elements in the most pleasing manner, and even after several years of training he only arrives at a stage where he is able to design a simple building before making studies of larger units and their arrangement in a community. This training is highly precise and disciplined and is based on the theory that if the student can solve basic problems he has a much more firm foundation on which to design and experiment with new ideas.

At the Institute of Design in Chicago the whole system seemed to be reversed and the student was encouraged from the beginning to experiment with new forms and materials. This school was primarily to create designers rather than constructors, and is a development of the Bauhaus in Germany before the war.

I felt, on the whole, that the training of an architect in America was rather better than in this country. The student seemed from his earliest studies to be taught how to build efficiently. In many cases, courses in structural engineering and construction were taken in those departments by the architectural student and valuable experience was gained by this. Another strong feature was that case studies were made on specific subjects, such as the relationship between cost and height, the amounts of steel required for various column grids, and whether columns were used in a high or low building; analysis of horizontal framing, the effect of structure on elevations; the effect on economy of stiff joints or pin joints and costs of various systems were also made and studied.

The shape and size of a building unit has an important bearing on economy—not only on construction costs, but also on the operating and maintenance cost.

It is all a question of maximum enclosure for the minimum of external walling. This would normally mean less area available for windows and natural ventilation, but there are many ways by which this problem can be overcome; for instance, by roof lights and mechanical services.

MECHANICAL SERVICES

In the United States the impact of mechanical services has had a tremendous effect on planning. Buildings are mechanically equipped to a much higher degree than here and the proportion of building costs devoted to services is so high that ways have been investigated to see whether savings in the structure can be made. In the case of elevators, complete reliance is placed on them, and only an insignificant fire escape staircase is normally provided in offices and blocks of flats. Such a staircase does not affect the structure in any way as it is not an integral part of the framework but is normally a standard pressed metal self-supporting staircase, passing through a void in the slab.

The high standard of American heating has resulted in savings in planning, especially in the field of housing. The open plan with its saving of corridors, entrance halls and circulation space can only be realised with an even temperature throughout the house or apartment. It saves up to 20 per cent. of the plan area.

The latest office buildings are usually mechanically ventilated, and since the services are so complex and have to be accessible the suspended ceiling is chiefly used. Lighting is usually recessed into this, and with the plumbing, heating and ventilation the thickness between the ceiling and structural floor is used to the full. Much development has taken place on suspended ceilings systems and most architects considered them a saving factor, especially when one considered the cost of plastering and decorating floor slabs and beams. Apart from the perforated acoustic tile, plaster or asbestos slabs were used, and there were innumerable systems of egg-crate louvres with fluorescent lighting behind them. Most suspended ceilings do not need decoration and were not usually fixed until the last moment, so that adjustments could be made to the services after testing. In fact, in most cases office space was let to tenants completely bare of ceilings or partitions, and they usually employed their own architect to equip the office.

The erection of industrial buildings in America is probably the finest example of collaboration between the specialists. The average American factory is built as part of the tooling of the industry and it is not usually intended that its life should be greater than 20 years, as it is considered that industrial processes will have changed radically by the end of that time. Most industrial buildings are carried out either by firms of engineer-contractors or by a comprehensive professional organisation such as the Albert Kahn office in Detroit. This firm probably carries out the greater part of all industrial building in America. Their office organisation is tremendous and a job is sent through the office in a most comprehensive manner. The work usually starts with the production engineers, who discuss with the user the correct sequence of production. This is then carried on to the stage where the necessary factory lay-out is considered in conjunction with the mechanical engineers responsible for the design of plant and the necessary power. The structural engineers are then called in, and complete designs are made to provide an enclosure for the whole building. Lastly, the architect is asked to design the administration buildings and to advise on the treatment of the industrial buildings generally. The efficiency of American industrial power is the answer to the way these great factories are designed.

THE EXTERNAL FRAME

There has recently been much development in America to free tall buildings from the restriction of the external frame. The early buildings were designed in the traditional way, so that columns were thickened down the building until they reached the ground. This was satisfactory when the amount of window was controlled to create standard sizes on each floor but meant that although windows on the lower floors practically filled the spaces between the columns, much infilling of brick or stone was needed on the upper floors to create uniformity. This problem was overcome in later years by freeing the external wall from the structure by setting back the face of the columns. This method was carried on for some considerable time until it was realised that the arrangement of furniture or fittings around the window area was difficult, owing to the obstruction of columns.

The latest development appears to be to free the outer wall structure entirely from the main structure, so that the building consists of an inner core of structural columns and beams, and the external column grid is broken down to provide a structure which will make the external wall self-supporting in a completely standardised way. It is almost like a cage enclosing the structure of the building. This development has meant that standardised spandrils and windows made either in aluminium or stainless steel can be used. They can be made in a factory or otherwise off the site, and use of brickwork or other *in situ* materials is completely avoided. The United Nations building is a very good example of this, and also the latest tall apartment blocks designed by Mies van der Rohe.

LIBERALITY WITH MATERIALS

As I mentioned earlier, the American architect designs his buildings to use as little site labour as possible. He achieves this not only by using dry methods of construction but also by not caring about the amount of material used in the job. For example, in the case of reinforced concrete, buildings are often erected up to 15 storeys in height and not one single variation is made in the column sizes the whole way up the building. In other words, the maximum loads which occur at ground floor level are used to determine the economic section of concrete. This section is then carried the full height of the building and only the reinforcement is varied, although additional variation is provided by adjusting the concrete mixes so as to have a strong mix at the bottom and a weaker mix at the top.

Furthermore all beams are standardised from floor to floor in the same way. This seems to me a logical thing to do, as the saving in form work is enormous. It also enables the shuttering to be made off the site, and since it is completely standardised many uses can be made of it. Once a piece of shuttering is designed for a great number of uses then it is possible to obtain absolutely smooth form work. This has been exploited to cut down plastering as much as possible.

This waste of actual material, whilst resulting in a saving of time, might not be thought very highly of in this country, where materials are scarce. Labour of course is cheaper here and the material costs tend to outweigh the cost of labour; but on the other hand we are short of building workers and really we have the same problem in a different way.

ADVANTAGES OF STANDARDISATION

The Americans, of course, do not consider the question of greater amounts of materials being used as important and this has resulted in much more economic planning and construction. This question of standardising the sizes of members and simplifying the shuttering has led to the widespread adoption of beamless floors, and I saw many buildings where the floor slab, although probably over-thick in some parts, was designed to resist the maximum moments around the column heads. The

thickness generally averaged about 10 in. An occasional refinement was the reduction of the weight of this concrete membrane, where bending moments were small, by the insertion of clay tiles, but this does not invalidate the general principle of creating a flush ceiling over the whole of the job. This has meant that the heights of partitions are completely standard and can be determined by the module sizes now prominent in the American industry.

The savings in labour and construction time are enormous and I should like to see this principle being applied to more jobs in this country.

Where it was necessary to provide floor beams, these were usually designed as a thickening of various areas of floor.

In the case of all frame buildings, fixings were either cast into the columns for carrying the external wall or cantilevered beams were provided at the top to enable cradles to be used, and bricklayers worked from these on the exterior of the building. I was never aware of any building being shrouded in steel scaffolding and I am quite sure that savings in cost were great.

STEELWORK

In the case of steel-framed buildings, the same question of using more material and less labour applied. The American steel industry manufactures a far greater range of sections than we have here, and there were many more heavier types of beams, so that at the base of a very high building such as the United Nations building no built-up plated stanchions were seen. At the other end of the scale, for light-weight buildings —such as schools—steel joists were rolled, which were deeper but of thinner sections than we are used to here. The beam arrangements of steel frame building were such that many more secondary beams were used and the spanning of the floor slab between these beams was usually no greater than 8 ft. This smaller span enabled light-weight cinder concrete to be used, lightly reinforced with a steel mesh. This meant that there was much less actual reinforced concrete work being used in a steel-framed building. In many cases, reinforcement was avoided altogether by using corrugated or ribbed steel floor decking, and heating coils were placed in actual contact to create a large area of radiant surface.

This question of speed has tended to retard the development of new techniques such as welding, shell concrete and pre-stressed concrete, though I always found architects aware of these new techniques and often they tried to introduce them. Cost, however, was the determining factor, and most of these systems necessitated more labour being used on the site. In the case of one particular job the architect was designing a large dome about 250 ft. in diameter and was hoping to use a thin concrete shell, prestressed at the edges to resist the thrust. The whole job was costed, but it was much cheaper to obtain the same effect as this rather pure form of construction by using a simple system of radial steel beams and covering this structure with a false ceiling.

There is a growing tendency in America for well-known architectural designers to work in association with other professional firms. In America there are many large offices which are organised to provide comprehensive services, and include on their staff structural, mechanical and sanitary engineers. These firms are extremely efficient, and most of their work is concerned with building large industrial plants and commercial undertakings where architectural design has not been quite so important. When these firms work in association with leading designers they take over completely after the design is produced and carry through working drawings and advise the contractor. This leaves the designer free to have a smaller office where he can personally supervise all the work and this has resulted in a relatively few contemporary architects carrying out a lot of work in America and being able to exert a very strong influence.

CONCLUSION

In conclusion I should like to set out the following points, which should be borne in mind when considering how a building can be designed more economically.

In the first place it is essential that there should be more basic research into the economics of various structural systems and the standardisation of constructional details. This kind of research should be carried out by the architect in association with other professional specialists before any major project is commenced. Planning should take into account the problems of relating space to cost and enclosing the building with as little external walling as possible. Furthermore, there is no doubt that planning should be confined to some regular system, with dimensional standardisation wherever possible, in order to use more standard components ; and plans should give clear and simple areas of erected material so as not to have the operative working in a haphazard way. It is essential to segregate varying cubic contents into definite sections of the building so that no effort is wasted by carrying smaller voids above larger voids and to devise means whereby all external scaffolding is avoided.

Greater attention should be given to the use of mechanical services, which can in certain circumstances reduce planning difficulties and save wasteful areas where normal natural ventilation or lighting is required. All trades should be segregated in such a way that they are able to work independently of one another. This means that architects must see more in terms of how a building is to be erected rather than of assembling differing materials in a traditional way. Buildings must be more streamlined and consideration be given to using materials, especially those which are plentiful, which can be erected easily.

Consideration should be given to the optimum sizes of structural members. Columns, beams and floors should be standardised as much as possible, even though there may be variations of span or loading. There must be more consultation with contractors or constructional men in the early stages, so that means can be found of using plant economically to avoid site labour as much as possible.

Lastly, the architect is the vital factor as far as producing economical buildings is concerned ; but he must have greater collaboration with client, specialist and contractor before results can be achieved.

OBITUARY

H. R. G. Montgomery, M.C., Hon.A.R.I.B.A.

It is with great regret that we record the death of Mr. H. R. G. Montgomery, M.C., Hon.A.R.I.B.A., Director of the Building Exhibition, which took place suddenly in hospital at Funchal, Madeira, on February 13. He was 61. Educated at Repton and at Clare College, Cambridge, Hugh Montgomery enlisted in the Royal Norfolk Regiment at the outbreak of the 1914-18 war, was awarded the M.C. for gallantry, and was invalided out, following wounds, with the rank of lieutenant-colonel. In 1920 he became associated with his father, the late H. Greville Montgomery (whose death took place only in December last), in the conduct of the Building Exhibition, Olympia, which Greville Montgomery had taken over nearly 60 years ago and had built up into a leading technical exhibition. During the latter years of his father's life, Hugh Montgomery (with his wife, Mrs. Molly Montgomery) had been responsible for the Exhibitions of 1947, 1949 and 1951, each of which has surpassed previous records—a tribute both to the organisation and to the solid foundations laid by Mr. Greville Montgomery. Hugh Montgomery had continued in the charitable tradition which was so much a part of his father's life and nature, and had made large benefactions to the Architects' Benevolent Society, of which he was a vice-president. He was elected Hon.A.R.I.B.A. in 1950.

To his widow, son and daughter, as to the other members of his family, we extend sympathy in a loss in which the building industry to no small part shares.

W. D. B. writes: The sudden passing of Hugh Montgomery will have shocked and grieved all who knew him. He was a modest man and a steadfast and loyal friend. The quiet and unassuming manner in which he addressed himself to the task of organising and presenting the best trade exhibition in the country often belied his conscientious approach to his work; but none doubted the sincerity with which he strove to make the Building Exhibition of the greatest possible value and service to the industry.

Behind the retiring exterior was a generous heart and a charming and sunny disposition; he enjoyed life and was ever ready to help others to enjoy it also. These qualities manifested themselves most in what were probably his happiest moments, when he and his wife entertained his friends at their delightful Buckinghamshire home.

Thanks largely to his efforts, the Building Exhibition has firmly re-established itself since the war, but it will never be quite the same without that lovable personality, Hugh Montgomery.

We are authorised to say that the Building Exhibition, next to be held in the autumn of 1953, will continue as planned. Mr. Bryan Montgomery (son of the late Hugh Montgomery) will be associated with Mrs. Molly Montgomery in the organisation of what will be the 25th of the long series of exhibitions.

W. Lynn-Thompson, A.R.I.B.A.

The death took place on February 10 of Mr. William Lynn-Thompson, A.R.I.B.A., F.R.I.C.S., Hawkhurst, Kent. Architect for Tenterden Borough Council and earlier for the Cranbrook Rural Council, he at one time also enjoyed a considerable private practice.

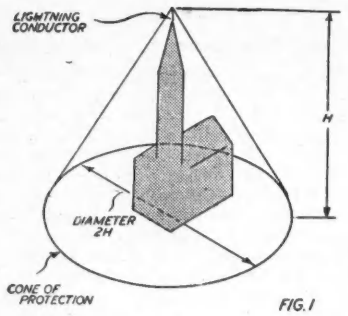
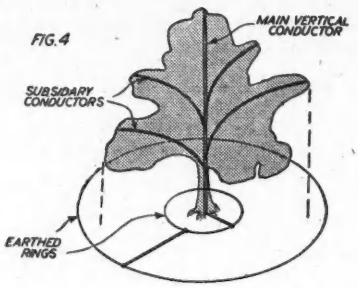
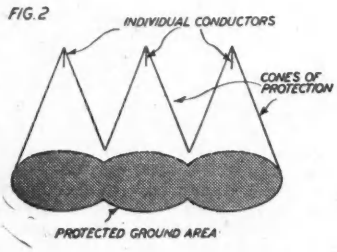
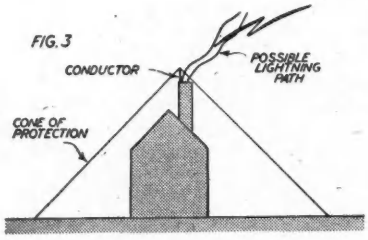


FIG. 1







Zones of protection afforded by lightning conductors.

PROTECTION FROM LIGHTNING

Precautions Necessary with High and Exposed Buildings

By R. H. WARRING

LIGHTNING may never strike twice in the same place, according to the old saying, but in actual fact the chance of a building or structure being struck by lightning is the same whether it has suffered a similar calamity before, or not. If the physical nature of the building is such that it comes into the category of those structures most likely to be struck, the fact that it has suffered in one storm will not increase but rather decrease its immunity to further thunderstorms. The one saving factor is that the chance of any one structure being struck at all is very remote.

Nevertheless, structural engineers and builders wisely take no chances. Structures in the "most likely" group are usually fitted with lightning protectors or lightning conductors. The protector is a conductor, the principle of protection being that a conducting path is provided from above the structure to the main mass of the ground, or earth, so that a discharge taking place in the immediate vicinity of the structure would take this straightforward, low-resistance path to earth rather than the higher-resistance path through the structure itself.

SUSCEPTIBILITY OF BUILDINGS

At the top of the list of structures requiring protection come high or exposed buildings where the highest level of the building is substantially above that of its surroundings. All structures in intimate contact with the ground must have a virtual earth potential and hence a high building is, in effect, offering an elevated earth point for stray electrical discharges in the atmosphere. A better and slightly more elevated earth connection (the lightning protector or conductor) will dissipate any local discharges without damage to the structure, even though the conductor itself may be destroyed or damaged in the proeess. In a really heavy discharge the electric currents may be extremely large and may give rise to the production of considerable heat.

Commonsense considerations usually apply. The ordinary householder need not worry about the advisability of fitting a lightning protector, unless he feels that his dwelling is particularly elevated or exposed and the area is one normally subject to severe thunderstorms. All large buildings of importance, or where chance damage could have serious consequences, are usually protected in a suitable manner.

Overhead wires are also usually protected. A lightning stroke could travel along overhead lines in the form of voltage surges which could cause serious damage to transformer equipment at power sub-stations, or to telephone exchange apparatus. The poles carrying the lines may themselves be suitably earthed or protected, or they may have an earth wire strung between the tops of all the poles, or surge absorbers actually fitted in the (power) lines. The latter take the form of choke coils which will pass normal 50 cycle alternating supply voltage but resist or completely absorb sudden surges of high potential and current, dissipating them in the form of heat.

ZONES OF PROTECTION

The zone of protection afforded by a single lightning conductor is very simply determined. The safe volume is a cone equal in height to the extreme height of the conductor and with a base diameter of twice this height. All parts of the structure falling within this zone are adequately protected (Fig. 1).

To cover a broader field without resorting to excessive vertical height (of the conductor) two or more vertical conductors can be employed, when the same principle applies. Each conductor has its own cone of protection, which now overlap one another completely to enclose the building or structure (Fig. 2). It is a relatively simple matter to determine just how many single conductors are required to afford complete protection for any shape or size of structure, and how these should be disposed in plan view, having regard to the erection height possible with each. The one overriding factor is that the height of the lowest conductor should, preferably, be greater than the greatest height of any part of the structure, unless this part is adequately covered by its own zone of protection.

THE "ELECTRICAL HEIGHT"

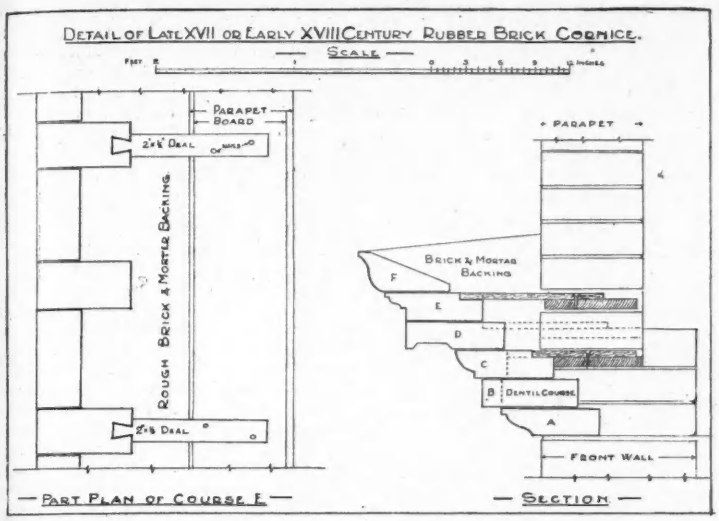
An interesting point is raised in that the "electrical height" of certain structures may be greater than the physical height. Hot air rising from a chimney, for example, may provide a conducting path for lightning from *outside* the zone of protection afforded by a conductor mounted on the chimney (Fig. 3). The chances are, however, that the lightning discharge would feed into the conductor and so to earth with no structural damage.

The conductors themselves are invariably of metal. Copper, certain brasses and bronzes, and gun-metal are best. Steel is sometimes used, protected against corrosion. An essential is a very good earth connection at the lower end. All conductors must also follow the vertical, or as near as possible a true vertical path to earth.

PROTECTION OF TREES

One of the lesser known applications of lightning conductors is to the protection of trees. There may be a variety of reasons for taking this precaution. The tree itself may be of historic interest, or it may be so situated that if struck damage may result to adjacent buildings, or sheltering cattle may be harmed.

The usual procedure is to run a main vertical conductor down to earth from the uppermost point of the main stem of the tree. All the main upper branches are then earthed or bonded to this main conductor, generally using stranded copper wire loosely bound in place (Fig. 4). Ideally, too, the earth connection should be provided by two rings, one close to the trunk and the other just outside the spread of the foliage, connected up as shown in the diagram.



A RUBBER BRICK CORNICE

Unusual Form of Construction

MR. C. A. MACKENZIE SKUES, F.R.I.C.S., informs us of an interesting discovery which he made in the course of the recent restoration of a house at Tooks-court, Chancery-lane. He came upon a detail of construction of a rubber brick cornice which was quite new to him. The Architect to the Ancient Monuments Department of the Ministry of Works and the Architect to the Historical Records Department of the L.C.C. have both stated that it was unique in their experience also.

Mr. Mackenzie Skues writes:—

I have been unable to get any documentary proof of the age of the building, but from many details it appears certain that it dates from about the year 1700. The house is scheduled for preservation as one of historical or architectural interest. It is known as "Dickens House," Tooks-court, E.C.4, and the local tradition is that Charles Dickens occupied it or lived in part of it during the time he was a Parliamentary reporter. It even goes further and claims that the house next door was occupied by an eccentric character whom Dickens took as a model for Scrooge. But the Dickens Society assure me that there is no known record to confirm the tradition. But they do say that Tooks-court is undoubtedly the place he had in mind when writing "Bleak House," in which he calls it "Cooks-court."

It will be seen from the drawing that the cornice face was of rubber bricks which, before moulding and rubbing, were of normal brick size. The backing of this front skin was of bricks (mostly bats and fragments) and lime mortar, with little attempt at any bond. It is obvious that such a structure could not hold up unless the front skin of rubber bricks was, in some way, held back to prevent it from tipping outwards. As the drawing shows, this was effected by dovetailing into alternate rubber brick headers, two-inch by half-inch deal battens, which were carried back and nailed to deal boards laid in and held down by the weight of the parapet wall. These tie battens were staggered from course to course.

It is remarkable that none of these battens and boards showed any sign of decay, despite the facts that the bomb damage occurred in 1940, that the front parapet wall was fractured and loosened, that the lead covering of the cornice (not shown in the drawing) had been stolen, probably soon after the damage, that the roof of the house had disappeared, that the brickwork was saturated with water and that restoration was not carried out until 1950. It is interesting to note how time has justified these old-time builders in the timber they used. Had they, one wonders, some trick, now lost, for protecting woodwork from dry rot, or did they just rely on sound mature timber well seasoned?

The Method of Restoration

The cornice had tilted slightly outward (probably due to shock), and the District Surveyor proposed to condemn it. But the L.C.C. Architect and I were very anxious to preserve it. The work was carried out by the general contractors, Messrs. W. T. Champion and Son, Ltd., and reflects great credit on them and their foreman. The rubber brickwork was first carefully shored up, the parapet wall pulled down, and the battens, boards and rough brick and mortar backing removed. The battens were replaced by ordinary iron wall ties cemented into the dovetail sinkings in the rubber bricks. These not being long enough to go well back under the parapet wall, expanded metal was laid over them continuously for the whole length of the cornice and fine concrete filled in course by course extending to the back line of the parapet. To make doubly sure, the lower part of the parapet wall, from the bottom of the cornice to about six inches above the top of it, was not rebuilt in brickwork but in the form of a reinforced concrete beam let into the party wall at each end. Incorporated in this beam was the reinforced concrete backing of the rubber brickwork described above. The operation was completely successful.

Trading in Lead

The Chancellor of the Duchy of Lancaster, on February 11, received a deputation from the committee of the London Metal Exchange to discuss the possibility of a return to private trading in lead on the London Metal Exchange. The Chancellor of the Duchy promised to give careful consideration to the views expressed.

INQUIRY BUREAU

Trouble with Oven Floor

Q.—We have been called in to examine a granolithic floor to a final prover of a bakery oven. All the nature appears to have been taken out of the surface of this floor. Could you tell us why this is, and what surface could be satisfactorily used?

L. R. C.

A.—The cause of failure may be due to several factors, one of which (in the case of a bakery) is that the granolithic was not thick enough and that the heat of the ovens caused the mixture to dry too quickly and subsequently disintegrated the matrix, reducing the Portland cement to a dry powder. In practice, it is best to put down the sub-concrete and the granolithic at least 1½ in. thick in one operation.

I suggest that the granolithic be taken up and the top of the sub-concrete thoroughly cleaned and a fresh face formed by bush hammering, then put down a special bonding layer and finally a granite cement floor in which should be incorporated—if the heat of the ovens cannot be shut down for several days—a special hardening material. I suggest also the use of special precast concrete flags 12 in. by 12 in. by 1½ in. or 2 in. thick, the top surface of which is heavily impregnated with steel.

G. W. H.

Excessive Condensation

Q.—Can you give some advice on how to prevent excessive condensation in a bedroom? The construction of the room is 11 in. and 9 in. brick walls, 6 in. concrete roof covered with standard roofing and tar macadam, 1 in. boarded floor on 4 in. by 2 in. joist plates and sleeper walls. The ventilation consists of one window with two side-light opening sashes and one fanlight, type No. D.4.F., also one permanent ventilator size 9 in. by 6 in. The size of the room is approximately 12 ft. by 9 ft. with 8 ft. ceiling height. This room was originally part of a covered yard and was converted into a bedroom while these premises were being converted into flats approximately three years ago.

To prevent this condensation, we applied granulated cork last year. This was successful on the walls, but was a complete failure on the ceiling. We have since been advised to cover the ceiling with ½ in. Celotex board, and will be pleased to know if you consider that this will be a success.

C. D. G.

A.—With reference to the construction of a concrete roof, I suggest that if a membrane of cork in the form of 1½ in. slabs was fixed externally with a bituminous compound before the standard roofing material was laid, the internal temperatures would be helped by the balancing caused through insulation. I do not consider it is possible to eliminate condensation by treating the surfaces entirely with cork in powder form. The appearance of condensation, particularly in the case of concrete ceilings, is usually tied up with adequate and proper ventilation. The difficulty is added to by the absence of a chimney flue, and I suggest that there should be at least four 9 in. by 6 in. permanent air bricks or ventilators, two of which should be near the ceiling and two above the skirting to improve air circulation. There should also be a system of heating, particularly if there is no solid fuel fireplace; heat tends to regularise the temperature that may enter in the form of humidity, etc., and helps to provide a better balance so that moisture will not form into condensation.

With regard to fixing a fibre board to the ceiling, it must be borne in mind that it is absolutely necessary to isolate the fibre board from the concrete. Wood battens 2 in. by 1½ in. should be fixed on the concrete at 1 ft. 6 in. centres. These battens and the fibre board should be at a distance of 2 in. from all sides to allow a certain amount of free ventilation, and the space covered with a strip of ventilation grating. Finally, the fibre board should be finished with distemper only.—G. W. H.

A Flaking Ceiling

Q. — Some two years ago a magnesite flooring was installed in the kitchen, bathroom and w.c. of the first floor, after conversion into two flats. The sub-floor is normal, plain edge flooring. The ground-floor ceilings under these rooms have, for some time, shown increasing signs of flaking in varying sized circles, so that now there is very little distemper left. It appears to us that this is due to the acid from the composition dripping through the wooden floor on to the plasterboard ceiling. Before redecorating we would like to solve this problem. L. B. S.

A.—The causes in this case appear to be very problematic due to the introduction of the magnesite flooring on a sub-floor of timber with open, square joints and the covering of the wood joists underneath with a plasterboard. The methods adopted preclude any chances of air circulation as exists under the system of open joint flooring and a lath and plaster ceiling. This allows breathing and a certain amount of play for air circulation and in consequence the non-existence of condensation which, together with the chances of the acid having percolated on the back of the plasterboard and the presence of condensation on the face of the plasterboard, causes the flaking. If there are no cracks in the flooring above and no sign of dampness, I suggest washing off the distemper, size and hang white lining paper on the plasterboard and paint with two coats of paint. Leave with a matt finish or use ordinary distemper on the paint. If some system of ventilation could be formed between the wood joists or ceiling level it would help matters. Incidentally, the magnesite flooring should have had a membrane of waterproof lining laid on the sub-floor to guard against acid penetration. G. W. H.

LOCAL AUTHORITY LOANS

New Interest Rates

THE Ministry of Housing and Local Government have sent a circular (No. 22/52), dated February 13, to local authorities in England and Wales informing them that the Treasury has revised the rates of interest that apply to all loans advanced to local authorities, as defined in Section 10 of the Local Authorities Loans Act, 1945, from the Local Loans Fund on and after February 9, 1952. The new rates, with old rates in brackets, are: Loans for not more than 5 years, 2¾ (2) per cent.; loans for more than 5 years but not more than 15 years, 3¼ (3) per cent.; and loans for more than 15 years, 4¼ (3¾) per cent.

The circular goes on to remind local authorities that the rate of interest on advances made by local authorities under the provisions of the Small Dwellings Acquisition Acts is fixed at a rate ¼ per cent. in excess of the rate of interest which, one month before the date on which the terms of the loan or advance are settled, was the rate fixed by the Treasury in respect of loans to local authorities for housing purposes.

WOOD PRESERVATION IN THE U.S.A

A Tour of Investigation

A TOUR for the purpose of visiting firms and research institutions concerned with wood preservation in the United States was recently made by MR. N. A. RICHARDSON, B.Sc., A.R.I.C., who is in charge of the Wood Preservation Section of the Forest Products Research Laboratory of the D.S.I.R., from whose report we take the following extracts. Mr. Richardson writes:—

In view of the grave shortage of timber in the United Kingdom it was felt that the visit should be undertaken to enable the author to see wood-preserving plants and to discuss with leading members of the industry modern methods of wood preservation, which have reached a high degree of efficiency in the U.S.A. The visit was made under the auspices and through the generosity of the Economic Co-operation Administration, and it was made possible for the author to extend his visit into Canada, which added to the technical value of the whole tour.

The main objects of the tour were:—

1. To study modern American practice in wood preservation and in particular to learn details of (a) the techniques used in the pressure-treatment of Douglas fir, hemlock, cedar and southern yellow pine; (b) the preservation of railway ties and their behaviour in the track; (c) the preservation of transmission poles and their behaviour in service, with special reference to methods used by operating companies in detecting and dealing with premature internal decay of poles; (d) the protection of building timbers against decay and termite attack; (e) the use of wood preservatives other than creosote; (f) the preservation of marine timbers and the testing of preservatives against marine borer attack.

2. To study methods of fire-proofing timber and of testing impregnated timber.

3. To study treatments for improving or altering the physical properties of wood.

4. To investigate the woods used for pencil manufacture.

5. To attend the 46th Annual Meeting of the American Wood Preservers' Association at Houston, Texas, in April, 1950.

Enthusiasm for Up-to-Date Methods

One of the outstanding impressions gained as a result of the tour is the goodwill that exists between the firms engaged in wood preservation in the U.S.A. and the keenness that exists everywhere to ensure that preservative treatments are carried out by the most up-to-date methods. A well supported and very active association, the American Wood Preservers' Association, which has now been in existence for nearly 50 years, serves as the means of exchange of ideas and information on the subject. It also ensures a high standard of preservation by its published specifications that are accepted as standards throughout the industry. The work of the various technical committees of the A.W.P.A. is most impressive, and the publication of their reports in the Annual Proceedings is received with much interest by those actively engaged in wood preservation all over the world. An invitation to address the full meeting of the A.W.P.A. and to attend the annual general meeting of the wood preservatives technical committee was much appreciated.

Most of the treating plants visited were well laid out to avoid congestion in the yards and to ensure a minimum of handling. Pressure cylinders, even though of large size, were usually under cover and all were well insulated to cut down heat losses to a minimum, to ensure that the preserving oils were heated sufficiently for the satisfactory impregnation of timber and to avoid overheating the buildings where men were employed. Many of the plants have been designed by engineers specialising in this work and are usually fitted with automatic temperature and pressure controllers. In the north-western States where Douglas fir is commonly creosoted by the Boulton process many of the plants have been specially designed for carrying out this treatment in the most efficient manner by the use of external creosote heaters and highly efficient steam ejector vacuum and condensing equipment.

All the plants visited had good chemical laboratories for the use of the staff and inspectors, and each had at least one qualified chemist. Many had, in addition, a research laboratory and small experimental impregnating plants. Another prominent feature was the extensive use of mechanical equipment for moving and processing timber.

Inspection of treated timber is efficiently carried out on behalf of the users of preserved timber.

Refractory Timbers

The treatment of refractory timbers such as Douglas fir has been thoroughly investigated and was being satisfactorily carried out at the plants visited. It is not sufficiently realised in Great Britain that such treatments cannot be hurried or carried out in a short time; they frequently necessitate a treating period of 36 to 48 hours even with incised material.

Coal tar creosote alone or in admixture with coal tar or petroleum oil is the main preservative for timber used in contact with the ground. Railway ties are generally treated with creosote/coal tar or creosote/petroleum mixtures which, besides being cheaper, seem to afford better mechanical protection to the ties than creosote alone. Poles and piling for use in sea water are always treated with coal tar creosote. This is because there is less bleaching of poles treated with creosote than with mixtures, and as creosote is more toxic to marine-boring animals. Water-borne salts are employed on a fairly large scale for the preservation of building timbers and other timbers used under conditions favourable to decay, but are not recommended for timbers that will remain in contact with the ground. Experiments have been carried out, however, with salts for the preservation of telephone poles where a clean treatment is essential. Solutions of pentachlorophenol in light petroleum fuel oils are also being used to a small extent for the preservation of poles and cross-arms.

It has been the practice to butt-treat with creosote durable pole species such as western red and northern white cedars, but a number of plants are now treating them full length by the open tank method.

The successful results obtained in the creosoting and life of piling is mainly the result of using round piling which has a thick outer band of sapwood. Round timber, besides being much easier to treat than squared, has this thick band of sapwood completely penetrated with creosote and is thus well protected against the attack of marine borers.

The tour enabled personal contact to be made with many of the best-known personalities in the field of wood preservation, and these contacts will prove very valuable in the future.

VALUATIONS AND THE PLANNING ACT

The True Nature of the Development Charge

THAT the development charges levied under the Town and Country Planning Act, 1947, can best be considered, for the purpose of arriving at their ultimate economic effect, if they are regarded as being a tax upon development was the argument advanced by MR. W. H. ROTHWELL, B.Sc., F.R.I.C.S., in a paper entitled "Theory of Valuations: the Effect of the Town and Country Planning Act, 1947," delivered at a meeting of the Royal Institution of Chartered Surveyors in London, on January 7. Having spent some part of his paper in developing this theme, Mr. Rothwell continued:

There are many grounds for so regarding the development charge, particularly as experience since the passing of the Act has shown that the anticipated alteration in the market value of land, which was a necessary corollary to any other interpretation of the development charge, has in fact not taken place in the free market. The authority for this is to be found in the many statements of Sir Malcolm Trustram Eve when Chairman of the Central Land Board.

From the economic point of view it is, therefore, necessary to consider the development charge in two aspects: (*a*) the extent to which the charge complies with the accepted principles of taxation, and (*b*) the ultimate incidence of the tax, or in other words, who ultimately pays for it.

FOUR PRECEPTS

There are four precepts with which a tax should comply if it is to raise the necessary revenue for a State or central government requirement, and to cause the least possible interference with the normal operation of the production of goods and services. These are:—

(i) *A tax should be levied according to the ability of a person or body of persons to pay the tax without disrupting their financial position.* If this precept is applied to the development charge, it would mean that the levy when charged should take into account the ability of the person upon whom it is charged to pay the amount, having regard to the use to which that person proposed to put the land in respect of which the charge is made. The method of calculating the charge should enable compliance with this precept of taxation, since the Act lays down that the charge plus the prime cost of the land should not be greater than the prime cost of the land to such a person before the passing of the Act. In practice, however, the Central Land Board have not been able to ensure this and have ignored the actual facts of the prime cost of the land for the purpose of levying the charge. This might provide justification for concluding that the principles of the development charge are contrary to this economic precept of taxation, but the correct conclusion is that the machinery for the levying of the tax is imperfect, rather than the tax itself, when considered in this respect. It is true that the amount of the charge and the pressing necessity to carry out any development for which a licence could be secured have so far obscured the importance of this aspect of the matter. The same reasons have prevented the charge from causing a universal change in the price level of land.

(ii) *A tax should be certain and not arbitrary.* I think the arbitrary nature of this development charge was fully acknowledged when any appeal against the assessment was refused during the passage of the Town and Country Planning Bill through Parliament. The amount of the tax as it stands is the individual decision of the District Valuers in various districts throughout the country. There are no less than 117 districts in England, Scotland and Wales, and each Inland Revenue Valuation Department District Valuer assesses the amount to be paid in respect of this tax in his own district, and I think no one can deny that there has been and is a great variation in the amount charged between the particular Valuation districts. Furthermore, a developer does not know what his charge will be until he has formulated the whole of his proposal, nor is there any machinery to enable him to ascertain this.

(iii) *Every tax ought to be levied at the time and in the manner in which it is most likely to be convenient to the tax-payer to pay it.* I can hardly conceive a charge which could be made at a more inconvenient time. It is made against a commercial or business enterprise at its inception, not when it is established and in a position to meet it. The imposition of the charge at this stage can well have the effect of crippling economically the enterprise which gives rise to the charge for, although it is obvious that the charge cannot be met by the enterprise even if it is successful, nevertheless the promoters may have proceeded so far in other directions (as they must before the amount of the charge becomes known to them), that they are bound to carry on with the work in the face of the almost certain knowledge that the charge completely defeats the possibility of success. This aspect of the matter has not been much in evidence for the same reasons mentioned concerning the ability of persons to pay a development charge, but this consideration will increase in importance when the margin between success and failure of a new enterprise is narrowed.

(iv) *Lastly, the gross tax collected should exceed by a minimum the net amount available for central government purposes.* All previous efforts to tax land values have fallen short on this particular matter more than on any other, and the reports of the Central Land Board so far appear to indicate that this is also applicable to the present development charge. The figures given by the Central Land Board for the amount of tax collected in the year 1949/50 and 1950/51, are respectively £3,826,406 and £4,455,416 of which £1,741,790 and £1,295,924 were not actually paid and have been set off against the Part VI claims. No figures have been given by the Central Land Board in their annual reports to Parliament for the costs incurred in the collection of these sums, but we find in the Appropriation Act that for the year 1949/50, the salaries and expenses of the Central Land Board are estimated at £1,610,000 and for 1950/51, at £1,586,500. The salaries and expenses of the Inland Revenue Department 1949/50 are £22,068,540 and those for 1950/51, £24,926,095. This appropriation includes the Valuation Office, and as this figure is not subdivided for other purposes it would appear that the figures in respect of the Central Land Board do not include any proportion of the valuers' fees. Further, the Appropriation Act gives the salaries and expenses of the War Damage Commission, which is part of the staff shared with the Central Land Board, as £2,016,300 for 1949/50, and £1,927,300 for 1950/51. The War Damage Commission must be assumed to have a limit of life. I do not suggest that the Central Land Board will have to maintain the full staff which is now used jointly, when the work of the War Damage Commission comes to an end, but the salaries and expenses of the Central Land Board must increase when this happens, and all the available evidence makes one suspicious that the net yield of this tax is altogether out of proportion to the cost of collection.

AN "UNSUITABLE" TAX

The result of the consideration of these four principles of taxation must in my view cause very considerable doubt on the suitability of development charge as a means of raising revenue to meet planning costs.

Turning next to the incidence of the tax, a tax on land should fall on the owner of the land if it is to achieve its purpose. The price which he can obtain for his land is governed by the price obtained under the law of supply and demand for the products which the occupation of that particular piece of land enables the occupier to produce and market.

The development charge is not, however, a tax on the whole of land occupied by persons who produce, say, buttons. It is a tax levied specially only on persons who commence new enterprises to produce buttons. In that respect, therefore, the ordinary laws of the incidence of a tax on land do not apply. Let us therefore consider what does happen in regard to this tax on the production of buttons. Before the tax was imposed, a new factory setting out to produce buttons must have the advantages of less expensive siting, modern machinery, methods, etc., in order to enable production at less than the ruling average production costs. The imposition of the development charge may wipe away the full benefits of the less expensive siting and maintain the price of buttons at the same level as the old factories and this would seem to be the logical result, since the amount of the tax is intended to raise the price of the land occupied by the new button enterprise to the price of the lands occupied by existing button enterprises. As there is no alteration in the price of buttons, it may be argued that the consumer does not pay the tax and that the

tax does go back to the landowner (or in this case the button manufacturer), and either that he has received some part of the £300,000,000 compensation or he should have been able to acquire his land at a price which takes into account the development charge. There is no certainty either that he has obtained his land at this reduced price or that he has received compensation from the £300,000,000, but it is certain that the imposition of this charge at this stage and in the manner in which it is levied precludes the fall in the price of buttons from this new enterprise. That being so, the consumer is robbed of his cheaper buttons and therefore in reality pays the tax.

A great deal of this is contrary to what has been accepted after very careful scrutiny by many people; nevertheless I believe that there are sound arguments against this theory of shifting values and the developments of this theory which have led up to the development charge being levied. From the point of view of the planner and of the economy of this country, it would be far better if, instead of endeavouring to by-pass what is really nothing more than the question of paying for a desirable limitation in the use of the land, the planners were to face up to this very simple proposition—that there is nothing in this world which can be obtained without paying for it, and then be content to judge their projects on that precept.

THE NATIONAL FEDERATION

New President on Materials Situation

SPEAKING at his first Press conference since his election as president of the National Federation of Building Trades Employers, MR. J. IAN ROBERTSON said he thought that we could look forward to a gradual expansion in the supply of building materials, and that the situation already showed signs of improvement. Steel was, of course, a notable exception, but even here he thought there was hope for better supplies of steel reinforcing rods.

Mr. Robertson went on to say that there would, from time to time, undoubtedly be bottlenecks in the supply of materials other than steel. In regard to timber, once one got the necessary licence it was a good deal easier now to get such components as wooden door and window frames than it was a year or 18 months ago.

Asked about the possibilities of handling more cement in bulk, to obviate hold-ups from shortages of bags, Mr. Robertson said that the cost of the plant was a disadvantage on small and medium sized jobs. If this was to come he thought that the cement manufacturers would have to get it going initially.

On the general building situation, Mr. Robertson said that the Government had started to move in the right direction, but the industry had to watch the position carefully and await developments. In reply to a question, he said he thought that there was no doubt that defence and housing, in that order, would be the two top priorities, and their needs would have to be met before those of other types of building.

Representatives on Government Bodies and Joint Committees

AT THE MEETING of the Council of the National Federation of Building Trades Employers held at 82, New Cavendish-street, W.1, on February 13, the following members were elected to represent the National Federation on Government Advisory Bodies, Joint Boards and Committees:—

Ministry of Works—National Consultative Council of the Building and Civil Engineering Industries: W. H. Forsdike, C.B.E., J. Ian Robertson (President) and S. F. S. Hearder (Director).

M.o.W. Advisory Council on Building and Civil Engineering Research and Development: H. E. Comben, O.B.E., B.Sc., H. B. Kerr, O.B.E., M.C., J.P., and S.F. S. Hearder.

M.o.W. Advisory Committee on Contractors' Plant: J. Harrison and P. Smallwood.

Building Apprenticeship and Training Council: R. P. Bannister, J. Dearden, G. A. Hill, W. H. Forsdike, H. G. Frost, Ald. S. G. Gibson, H. Payne, J.P., J. C. Robertson, O.B.E., F. M. Sleeman, C.B.E., G. O. Swayne and I. Ernest Jones, M.A., B.Sc.

M.o.W. Consultative Committee for the Stone Industry: A. N. Pictor.

Ministry of Labour and National Service—Building and Civil Engineering Labour Advisory Panel: G. W. Buchanan, C.B.E., W. H. Forsdike, J. Ian Robertson and I. Ernest Jones.

M.o.L. and N.S., Special Training Committee: G. W. Buchanan, J. Ian Robertson, F. M. Sleeman and J. A. Paton Walker.

National Savings Advisory Committee for the Building and Civil Engineering Industries: R. R. Costain, C.B.E., L. A. Walden and C. G. Rowlands, M.A.

Building Industries National Council: G. W. Buchanan, W. H. Forsdike, J. Ian Robertson, Wilfred Horsfall, S. F. S. Hearder and I. Ernest Jones.

British Employers Confederation: (council), W. H. Forsdike, S. Hudson, J. Ian Robertson and I. Ernest Jones; *(general meeting)*, R. R. Costain, W. H. Forsdike, Stephen Hudson, R. O. Lloyd, O.B.E., Norman Longley, J. Ian Robertson, S. F. S. Hearder and I. Ernest Jones.

Building and Civil Engineering Holidays Scheme Management Limited: (board of directors), G. W. Buchanan, W. H. Forsdike, F. Leslie Wall; *(members of the company)*, W. F. Allen, G. W. Buchanan, W. H. Forsdike, W. H. Gascoigne, W. F. Gibson, R. O. Lloyd, H. Payne, J. Ian Robertson, J. R. Scull and F. Leslie Wallis.

Holidays with Pay Joint Industrial Board: W. H. Forsdike, F. Leslie Wallis and I. Ernest Jones.

National Joint Apprenticeship Board: W. H. Forsdike, J. S. Cothliff, J. Dearden, W. E. Fishburn, O.B.E., G. A. Hill, H. S. Johnson, F. M. Sleeman, G. O. Swayne and P. G. Whitehouse, M.B.E., M.C.

Architects and Builders Joint Consultative Committee: Wilfred Horsfall, S. Hudson, H. B. Kerr, R. O. Lloyd, Norman Longley, J. Ian Robertson and the chairman of the Contracts Committee.

Joint Committee with the Royal Institution of Chartered Surveyors: E. W. Garrett, Wilfred Horsfall, S. Hudson, J. Ian Robertson, W. W. Sapcote and F. M. Sleeman.

Joint Contracts Tribunal: H. B. Kerr, W. W. Sapcote, Coun. F. W. Shepherd and R. S. Williams.

Architects' Registration Council: D. E. Woodbine Parish.

Joint Committee on Standard Method of Measurement: W. W. Sapcote, R. E. I. Carlyle, S. T. Firth, J.P., B. T. Rice-Pyle, E. J. Smith, C.B.E., L. A. Walden and R. H. Woolliams.

Liaison Committee with the Federation of Civil Engineering Contractors: G. W. Buchanan, W. H. Forsdike, W. Horsfall, S. Hudson, R. O. Lloyd, N. Longley and J. Ian Robertson.

British Standards Institution: (General Council), R. E. I. Carlyle; *(Building Divisional Council)*, R. E. I. Carlyle, P. Smallwood and Eric White.

British Road Federation: Nigel Hannen.

Plasterers National Joint Advisory Committee: T. G. Bowler, P. C. Crotch, A. E. Hall, J. P., Wilfred Horsfall A. C. V. Telling and C. G. Rowlands.

Standing Committee for the Training of General Foremen: D. E. Woodbine Parish, R. Charlesworth, E. Edmondson, G. I. Orchard, P. G. Whitehouse and J. A. Paton Walker.

Employers' and General Foremen's National Joint Advisory Committee: P. G. Whitehouse, R. Charlesworth, E. Edmondson, Nigel Hannen, G. I. Orchard, R. W. Whittington, D. E. Woodbine Parish and J. A. Paton Walker.

WAR DAMAGE PAYMENT

Furnishing of False Information Alleged

APPEARING at Clerkenwell Magistrates' Court, on February 14, on adjourned summonses alleging the furnishing of information which they knew to be false for the purpose of obtaining a war damage payment, Louis Frank Lawrence, a builder, of 3, Cintra-park, S.E.19, and James Whitbread, a surveyor, of 123, Coldharbour-lane, S.E.5, were committed for trial at the London Sessions. The summonses related to work carried out at 6, Addington-grove, S.E.26, in 1948.

On February 14, Mr. E. G. Macdermott, counsel, appeared for the Director of Public Prosecutions, and said that in view of evidence given under cross-examination at the last hearing by Mr. F. G. Golding, a war damage assessor, he had to admit that he would not be justified any longer in asking the magistrate to accept a certificate which had been given by the War Damage Commission that the offence first came to their notice in July, 1951. Even the War Damage Commission were not infallible, and it appeared from Mr. Golding's evidence that the offence was discovered in 1950.

The effect of this was that the case now had to go for trial instead of being dealt with summarily.

Cross-examined, Mr. J. W. Shoesmith, a war damage assessor who had given evidence at the previous hearing, said that, in making an assessment on July 12, last year, of the work which had been done at 6, Addington-grove, he had no knowledge of any alterations to the original specifications which might have been suggested by the district surveyor. "I rang up the district surveyor but he gave me no information," said witness.

Mr. C. R. Dunch, a war damage assessor, said that on October 16, 1951, he made a valuation of the work at 6, Addington-grove which, in his opinion, had not been done in accordance with the original specifications. On the basis of the prices in the estimate he valued the work which had not been done at £229 4s. 6d.

Det. Sergt. D. James said he saw Lawrence on December 10. Lawrence made a statement (produced). On December 12 he saw Whitbread who also made a statement (produced). Cross-examined, the officer said both defendants were very co-operative. They produced their books for inspection.

Mr. D. Renton, M.P., counsel for Lawrence, submitted that no false statement was shown to have been made. The document which was attached to the war damage form when the claim was made was an account for carrying out war damage repairs, as agreed, for a lump sum payment of £472 13s. It was immaterial to consider the details of the work which was done, no evidence having been given in fact that the work done was not war damage work.

The magistrate (Mr. Frank Powell) held that there was a case for a jury to consider.

Builders at Golf

The new season of the L.M.B.A. Golfing Society opens on April 22 when the spring meeting will be held at the Berkshire Club, and a full programme has been arranged. Mr. Dudley F. Cox has been re-elected captain. All particulars may be obtained from Mr. P. H. Bates, hon. secretary, Thomas Bates and Sons, Old Brickworks, Harold Wood Essex.

PROBLEMS OF TRAINING APPRENTICES

General Foremen's Task

THE part the general foreman had to play in the present-day training of craft apprentices for the building industry was discussed by MR. D. E. WOODBINE PARISH, president, L.M.B.A., at a meeting of the London Builders' Foremen's Association, held at 47, Bedford-square, W.C.1, on February 12.

It was extremely important, said Mr. Woodbine Parish, that the building industry as a whole, and general foremen in particular, should have a very definite and concise knowledge of the various responsibilities involved in the considerable field of apprenticeship, and that each section of the industry should make its maximum contribution towards the training of its future entrants and personnel. He was hopeful that general foremen would be quick to appreciate the position they held and the many opportunities they had to ensure that by their experience, understanding and interest, every craft apprentice received kindly encouragement and the best possible practical training, both on the site and in the shop balanced, so far as was possible in present circumstances, with the theoretical training given at the technical college.

The speaker recommended those present to peruse the Ministry of Education's Pamphlet No. 4 entitled "Building Crafts," which, he said, had been prepared by individuals with expert knowledge of technical education in the industry.

Mr. Woodbine Parish dealt in some detail with the historical background of apprenticeship, examining the establishment of the early craft guilds during the fifteenth century and tracing how, as a result of industrial and social evolution in this country and on the Continent, the pattern of apprenticeship had inevitably changed.

He impressed upon the meeting, however, that the basic reason for the establishment of craft apprenticeship, over five centuries ago, was exactly the same as the reason that continuously prompted us, at the present time, to ensure a steady intake into the industry of keen, young men leaving school.

This reason, in the simplest terms, was the need to ensure the continuity and development of our civilised existence and fundamental way of life.

Until the last century, the speaker continued, it was common custom for a master craftsman to accept an apprentice into his house, to care for his bodily and spiritual needs, to teach him the secrets and mysteries of his craft, and by so doing to try to create a responsible citizen with high moral and ethical standards and an enjoyment, satisfaction and pride in personal creative skill and a deep desire to fulfil his duty towards the community of which he was a member, without the constant thought of personal gain or advantage.

To-day, that mode of craft apprenticeship had gone, and in its place, while the same basic needs and principles remained, the responsibility was divided and difficult to co-ordinate. It was obvious that success in the matter of apprenticeship in present conditions could only be achieved by the greatest goodwill resulting from an understanding and acceptance by all concerned of their several duties.

Mr. Woodbine Parish explained in detail the National Joint Apprenticeship Scheme established by the National Joint Council for the Building Industry in 1945, which now formed part of the National Working Rule Agreement. He drew particular attention to the various covenants contained in the Deed of Apprenticeship, and suggested that general foremen should make themselves familiar with every detail of the scheme.

"As a nation," declared Mr. Woodbine Parish, "we are facing a most critical manpower shortage, which is, unfortunately, aggravated by the abnormally low birth-rate of the late nineteen thirties. In London, we are finding great competition for the limited number of school-leavers available to industry and commerce.

"It is, therefore, more important than ever before that we do everything to attract the right type and numbers of boys and, jointly with their parents and guardians, ensure that when they enter our great industry we understand and accept our responsibilities and give every possible opportunity and encouragement to these twentieth-century apprentices to become fine craftsmen and robust and conscientious citizens."

Discussion

During the discussion which followed one speaker referred to the apparent lack of enthusiasm of some headmasters in showing interest in the placing of promising men in the building trades. Another questioner was concerned about the competition from other industries, and in reply, Mr. Woodbine Parish suggested that organisations concerned with the welfare of general foremen should get together and form a committee to investigate the whole aspect of recruitment. It was necessary to forge a more binding link between industry and schools. It was, however, significant that the number of probationers was greater now than during the period 1947-1949.

The distance the apprentice had to travel between work and college or home, and the general cost of living for the young craftsman, were points raised by another speaker, who wondered what effect these more personal problems had on enthusiasm. This point was further developed by a contributor who thought that the lack of amenities and general conditions of work made likely candidates look towards the more attractive light industries.

The idea that the standard of preliminary examinations for which students were required to sit should be lowered in order that the young craftsman could gain encouragement was vigorously attacked by Mr. Woodbine Parish. Whatever the motive, it was imperative, he said, that the standard of building education should not be lowered.

It was suggested that considerable help could be gained from knowledge of the number of vacancies within the industry. Mr. Woodbine Parish stated that the yearly intake of apprentices into the industry was 22,500. At the moment the deficiency of labour was between 4,000 and 4,500. The position was worse in the trowel trades than in carpentry and joinery.

The final question concerned the call-up. Although deferment allowed for completion of study, it did not give the new man opportunity for much practical work before military service, a speaker pointed out. It had been proved that those who managed to gain this spell of real trade work before their Army call-up were all the more ready to return.

Mr. Woodbine Parish agreed that this would be beneficial to the industry, but he felt that this was an instance where national need must come first.

REMEMBER

HELICON FLOORS

ARE FIRE-PROOF

AND

SOUND RESISTING

Helicon

THE HELICAL BAR & ENGINEERING CO. LTD.
82 VICTORIA STREET, WESTMINSTER, LONDON, S.W.1
Phone: VICtoria 6838
Resident Agents: Birmingham, Middlesbrough, Newcastle

M-W.53

TENDERING DIFFICULTIES

Negotiated Contracts Suggested

SPEAKING recently as president of the West Kent Association of Building Trades Employers, MR. R. A. BATES, of Tunbridge Wells, said that while they all appreciated the reason for competitive tendering, the average builder unfortunately found that the contracts were too large for him and the time too short for the contracts to be undertaken by him or by one individual firm. The small builder, therefore, did not get the opportunity he would like to have of playing a part in the enormous task of building 300,000 houses a year by entering into local authority contracts.

By way of a reasonable solution to the problem of increasing the number of houses in the shortest possible time, Mr. Bates suggested a negotiated form of contract under which builders would be allocated a certain number of houses, and it could be arranged that they worked under a parent firm.

HAULAGE COSTS CRITICISED

Stricter Economy Urged

THE LATEST 7½ per cent. increase in the rates charged by the nationalised Road Haulage Executive was criticised by MR. R. B. BRITTAIN, chairman of the national rates committee of the Road Haulage Association (which represents free enterprise hauliers) at Norwich on February 12.

If the Road Haulage Executive had applied the principle of strict economy of operation as practised by free enterprise hauliers, many of the increased costs could have been absorbed, he said. "The nationalised juggernaut is fast getting out of control," Mr. Brittain added. "If the nation's road transport is to be saved for trade and industry the whole of it must be returned to free enterprise. The sooner Parliament applies itself to this task the sooner will the taxpayer be relieved of the possibility of footing the bill every year for the losses incurred in one of the worst experiments ever undertaken in Government control."

M.O.W. WINTER LECTURES

March Programme

LECTURES to be given during March next in the Ministry of Works winter season of discussion-lectures on subjects of interest to the building industry are as follows:—

March 3.—"Common Defects in Building," by H. J. Eldridge, B.Sc. South East London Technical College, Lewisham-way, Lewisham, S.E.4. 8 p.m. *March* 4.—"Seasoning and Preservation of Timber," by J. Jowett. Creighton School, Strand-rd., Carlisle. 7 p.m. "British Standards and Codes of Practice for Building," by C. Roland Woods, M.B.E., LL.D. Bodhyfryd Hall, Chester-rd., Wrexham. 7 p.m. *March* 5.—"Prestressed Concrete," by F. Walley, M.Sc., A.M.I.C.E. Technical College, Mayfield, Pelham-rd., Gravesend. 7.15 p.m. "Surface Finishes of Concrete," by J. C. Wilson, A.R.I.B.A. College of Building, Clarence-st., Liverpool. 7 p.m.

March 11.—"Good Practice in Plumbing," by G. Lloyd Ackers, M.I.C.E., M.I.Struct.E. Croydon Polytechnic, Selhurst-rd., South Norwood, S.E.25. 7.30 p.m. "Prestressed Concrete," by H. Kaylor, B.Sc., A.M.I.C.E. College of Further Education, Newtown-rd., Hereford. 7.15 p.m. "Techniques and Devices for Improving Bricklaying Output," by C. S. Thompson, A.M.I.Mech.E. Y.M.C.A., Connaught Hall, Blackett-st., Newcastle-upon-Tyne. 7 p.m. *March* 12.—"British Standards and Codes of Practice for Building," by C. Roland Woods, M.B.E., LL.D. Tottenham Technical College, High-rd., London, N.15. 7.30 p.m. *March* 13.—"New Timbers in Building," by B. J. Rendle, B.Sc., A.R.C.S. Technical College, Chesterfield-rd., Mansfield. 7.15 p.m. "Foundation Problems," by L. R. Creasy, B.Sc., A.M.I.C.E. Medway Technical College, 370, High-st., Chatham. 7.15 p.m. "Foundations on Shrinkable Clays," by W. H. Ward, B.Sc., A.M.I.C.E. Technical College, Abbey Foregate, Shrewsbury. 7.15 p.m.

March 17.—"Building (Safety, Health and Welfare) Regulations, 1948," by T. M. Hoskison. School of Arts, Green-la., Derby. 7.15 p.m. "Good Practice in Plumbing," by G. Lloyd Ackers, M.I.C.E., M.I.Struct.E. Municipal Hall, Taunton. 7 p.m. *March* 18.—"Good Practice in Plumbing," by G. Lloyd Ackers, M.I.C.E., M.I.Struct.E. Bristol University, Physics Lecture Theatre, Royal Fort, Bristol, 8. 7 p.m. "Small Heating and Ventilating Systems," by J. C. Knight, A.M.I.H.V.E. Ministry of Labour and National Service Employment Exchange Canteen, Cheylesmore, Coventry. 7.15 p.m. "Opportunities and Prospects for Building Apprentices," by J. C. Cox, O.B.E., M.S.M. Technical College, Darlington. 7 p.m. "Introduction to Site Costing for Builders," by R. H. James. Central Library, Alexander-rd., Swansea. 7 p.m.

March 19.—"Site Investigation," by N. W. B. Clarke, M.Eng., M.I.C.E. Lecture Theatre, Gas Board Showrooms, St. Johns-sq., Cardiff. 7 p.m. "Technical Information for the Building Industry," by N. McKee. Technical College, Southtown, Great Yarmouth. 7.30 p.m. "British Standards and Codes of Practice for Building," by C. Roland Woods, M.B.E., LL.D. Technical Institute, St. Mary's-rd., Kettering. 7.15 p.m. "Opportunities and Prospects for Building Apprentices," by J. C. Cox, O.B.E., M.S.M. Kirby Girls' Secondary Grammar School, Middlesbrough. 7 p.m. "The Planning of Potteries," by M. Upright, A.R.I.B.A., A.M.T.P.I. Building Department, Technical College, Couldon-pl., Stoke-on-Trent. 7.15 p.m. *March* 20.—"Economy in Traditional House Building," by N. S. F. Pippard. Wimbledon Technical College, Gladstone-rd., Wimbledon, S.W.19. 7.15 p.m.

March 24.—"Painting Traditional Buildings," by T. A. Baker. Technical College, Workington. 7 p.m. *March* 26.—"Prestressed Concrete," by F. Walley, M.Sc., A.M.I.C.E. Little Theatre, Education Offices, Guild-st., Burton-upon-Trent. 7.15 p.m. "Surface Finishes of Concrete," by J. C. Wilson, A.R.I.B.A. East Ham Technical College, Arragon-rd., E.6. 7.15 p.m. *March* 27.—"Machines for the Modern Builder: Some Recent Developments in Building Plant," by A. MacNiven-Brown, A.M.I.Mech.E. Technical College, Wulfruna-st., Wolverhampton. 7.15 p.m. *March* 28.—"Common Defects in Building," by H. J. Eldridge, B.Sc. Technical College, Tonbridge-rd., Maidstone. 7.15 p.m. "Lightweight Concretes," by T. Whitaker, M.Sc., A.M.I.C.E. Lecture Theatre, Gas Show Rooms, Albert-sq., Manchester. 7.15 p.m.

£650,000 for National Savings

Employees of Messrs. John Laing and Son, Ltd., building and civil engineering contractors, have saved £650,000 in National Savings Certificates since 1940 through the firm's savings group.

WATER UNDERTAKINGS AND STEEL

Plea for Government Action

A RESOLUTION urging the Government to make available the relatively small quantity of steel needed for the continuance of the water supply maintenance programme, repairs and essential new work was passed at a special meeting of the British Waterworks Association in London on February 12.

MR. A. PARSONS, representing the North East Derbyshire Joint Water Committee, said that unless there was an increased allocation of steel and other materials for water undertakings there would not be water for industry.

MR. L. MILLIS, secretary of the association, said that a water main supplying a major city could not be repaired after a burst for want of a pipe weighing two tons. A big atomic energy plant in the north was to be operating in two months' time. It was dependent for its water on a local water authority. That authority was building certain special works for the atomic plant and required 20 tons of steel, but so far it looked as if there would be no steel for it.

The meeting also passed a resolution stating that the association learned with dismay that no steel, except for new housing, would be available to the water supply industry for the first quarter of 1952, and little thereafter.

OFFICIAL NOTIFICATION

Sale of Lead to the United States

The Ministry of Materials has announced that, with the agreement of the Canadian and Australian Governments and producers, 30,000 tons of lead supplied under their current contracts with the Ministry have been resold and will be delivered to the United States during the next four months. Prices will be equivalent to the current price for foreign lead in the United States.

Tenants to Pay for Repairs

The carelessness of tenants of corporation houses is the reason for a decision by Flint Borough Council to make tenants pay for repairs and replacements under certain conditions.

NEW COMPANIES

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

Thomas Monk & Sons, Ltd. (502192). Regd. Dec. 10, Canterbury-rd., Sittingbourne, Kent, bldrs., etc. Nom. cap.: £10,000. Dir.: L. J. Monk, Ein Cartref, Bapchild, Sittingbourne.

Warners (Bristol), Ltd. (502276). Regd. Dec. 12, No. 2, The Arches, Laurence Hill, Bristol, bldg. and painting contractors. Nom. cap.: £1,500. Dir.: A. T. Warner, 8, Milsom-st., Stapleton-rd., Bristol.

F. A. Marsden, Builders, Ltd. (502400). Regd. Dec. 15, 4, Grange-st., St. Albans. Nom. cap.: £100 in £1 shares. Dir.: F. A. Marsden.

H. W. Bone and Co., Ltd. (502411). Regd. Dec. 15, Colne Engaine, Essex, bldr. and contractor. Nom. cap.: £8,000. Dir.: H. W. Bone, Lencroft, Greenways, Frinton-on-Sea.

Martin Bros. (Carlisle), Ltd. (502419). Regd. Dec. 15. Nom. cap.: £7,500. Dir.: J. H. Martin, Lyndhurst, Harker Park-rd., Carlisle.

Modern Structures (Southern), Ltd. (502459). Regd. Dec. 17, 72, High-st., Bognor Regis, bldrs. and contractors. Nom. cap.: £100. Dir.: B. L. Smith, 37, Mansfield-rd., Bognor Regis.

S. Binstead, Ltd. (502463). Regd. Dec. 17, 20, Grosvenor-pl., S.W.1, bldrs., etc. Nom. cap.: £1,000. Dir.: S. B. Binstead, 11, Wills-cres., Hounslow, Middlesex.

C. G. Simmons, Ltd. (502474). Regd. Dec. 18, 96, Hibernia-rd., Hounslow, Middlesex, bldrs. and contractors, etc. Nom. cap.: £3,000. Dir.: C. G. Simmons.

F. Strachan, Ltd. (502479). Regd. Dec. 18, 60-62, Michael-rd., Fulham, S.W.6, bldrs., etc. Nom. cap.: £5,000. Dir.: F. C. Strachan, 117, Bulstrode-rd., Hounslow, Middlesex.

McAllister (Builders), Ltd. (502517). Regd. Dec. 19, Brettenham-hse., Lancaster-pl., Strand, W.C.2. Nom. cap.: £2,000. Dir.: L. McAllister, 4, Thornwood-rd., Lewisham, S.E.13.

Cawdery and Pollington, Ltd. (502547). Regd. Dec. 20, 17, Bedford-row, W.C.1, bldrs., bricklayers, etc. Nom. cap.: £5,000. Dir.: F. P. Cawdery, Seacaw, Marsworth, Tring, Herts.

Graham and Weale, Ltd. (502559). Regd. Dec. 20, Linden-hse., Monk-st., Abergavenny, bldrs., contractors, etc. Nom. cap.: £5,000. Dir.: T. H. Graham, Eignbrook, Park-cres., Abergavenny.

H. Beavon and Son, Ltd. (502561). Regd. Dec. 20, 26, Junction-rd., Romford, Essex, bldrs., contractors, etc. Nom. cap.: £1,000. Dir.: H. Beavon, 26, Junction-rd., Romford, Essex.

F. Whittlesea, Ltd. (502626). Regd. Dec. 21, 2, Dacre-chbrs., Strutton Ground, Victoria-st., S.W.1. bldg. and decorating contractor. Nom. cap.: £1,000. Dir.: W. Whittlesea, 1, Dacre-chbrs., Strutton Ground, S.W.1.

G. S. Heasler, Ltd. (502631). Regd. Dec. 21, Church-st., Esher, Surrey, bldrs., decorators and contractors. Nom. cap.: £500. Dir.: A. G. Foster, 15, Wyndham-ave., Cobham, Surrey.

Kingsway Building Contractors (Kenton), Ltd. (502687). Regd. Dec. 22, 2, Bridge-hse., 134, Kenton-rd., Kenton, Middlesex. Nom. cap.: £100. Dir.: R. Fidmont, 6, Elm-gr., Harrow.

Woolnough and Cogman, Ltd. (502716). Regd. Dec. 22, bldrs. and contractors. Nom. cap.: £8,000. Dir.: E. W. Cogman, Framingham-la., Framingham Earl, Norfolk.

HUMAN RELATIONS IN INDUSTRY

Ministry of Labour Conference

WAYS AND MEANS of ensuring the greatest efficiency in the use of the country's manpower will be discussed at the "Human Relations in Industry" conference which the Ministry of Labour and National Service is holding in London from March 18 to 20. The Minister of Labour and National Service, Sir Walter Monckton, will open the conference and Sir Godfrey Ince, Permanent Secretary of the Ministry, will be the chairman.

Subjects to be discussed include: Factors affecting the employment of those who want to work—including the older worker and the part-time woman worker; factors which help workers to make the best use of their capacities; factors affecting the physical wastage of manpower; factors affecting management-worker co-operation and the will to work.

The conference will be held at the headquarters of the Institution of Civil Engineers and further particulars can be obtained from the Director of Public Relations, Ministry of Labour and National Service, 8, St. James's-square, S.W.1.

NEWS IN BRIEF

Instructional Films on Loan

The Department of Scientific and Industrial Research are to make available certain films on loan. A list of these films may be obtained from the Building Research Station, Garston, Watford, Herts.

Registration of Building Companies

According to an analysis compiled by Jordan and Sons, Ltd., company registration agents, of 116, Chancery-lane, London, W.C.2, concerning the course of company registrations for the year 1951, 902 building companies were registered in that year compared with 1,031 in 1950.

College of Estate Management

Mr. F. G. Goodin, F.R.I.B.A., is to relinquish his post as Head of the Building Department at the Hammersmith School of Building and Arts and Crafts in order to take up the appointment of Head of the Building and Quantity Surveying Department at the College of Estate Management.

Chamber of Commerce Report

A feature on Market Prospects in Australia is given in the 1951 year book of the Westminster Chamber of Commerce. Details on the principal Government and public offices are provided, together with the annual report and list of members of the Chamber. Copies may be obtained from 2-3, Duke-street, St. James's, S.W.1.

Woodworking Machinery Demonstration

About 150 members of the Timber Development Association (South-Western Region) are to visit Stenners of Tiverton, Ltd., Lowman Works, Tiverton, Devon, on March 1. New developments and additions to the company's range of machinery are to be shown during the course of demonstrations and visits to the timber estate.

L.C.C. Retirement

Mr. H. T. Cooksey, A.R.I.B.A., A.I.H.V.E., a senior architect in the L.C.C. architect's department, has decided to retire from the council's service on February 28, in view of his age (60 years) and long service.

The council's establishment committee states that Mr. Cooksey's own professional ability and experience have contributed largely to the achievement, over the past 30 years, of the L.C.C.'s safety regulations for places of public entertainment coming to be accepted as a standard throughout the country, and that by his retirement the council "will lose the services of an able and devoted officer."

"People's Houses" to be on View

Two examples of the "People's House," and an old folks' bungalow are being presented at *The Daily Mail* Ideal Home Exhibition at Olympia in March by the Ministry of Housing and Local Government. They will be built in semi-detached form, and will face one end of the central green in the village of shops and houses. The corner house, gabled, will be a two-bedroom type, suggested as a home for a youngish family of four, living in town. Its area is 679 sq. ft. Next door will be the three-bedroom type which, it is suggested, might suit a country family of five. Here the kitchen (13 ft. 1 in. by 7 ft. 6 in.) and the hall occupy the front of the house. The area is 863 sq. ft., plus 51 sq. ft. of store space within the four walls and 12 ft. sq. fuel store outside. They will be built by John Laing and Son, Ltd.

Employment Situation in December

According to the latest figures issued by the Ministry of Labour and National Service, it is estimated that the level of employment in the building and contracting industries declined seasonably by 36,000 in December last. The figure for December was 1,422,000 as compared with 1,458,000 in November. At the end of 1950 the figure was 1,425,000.

Oxford Relief Road Plan Quashed

Oxford C.C., on February 18, reversed, by 28 votes to 25, the decision of its general purposes committee to instruct the planning committee to include an inner relief road in the development plan for the city. The suggested road would have cut across Christ Church Meadow, involved the demolition of about 20 properties, and would have necessitated the building of two river bridges.

ARCHITECTURE AND THE CINEMA

"Three Fundamental Approaches"

DR. RONALD BRADBURY, F.R.I.B.A., A.M.T.P.I., Liverpool City Architect and Director of Housing, spoke on the importance of architecture to the Merseyside Film Institute Society recently, when he told them that as an ordinary cinema patron he was interested in the architectural settings in film production.

There were three fundamental approaches, he said: the artistic, the romantic and the impressionistic. The realistic approach, being the use of actual buildings as the background for the scenes, might be regarded as emphasis on the ordinary, or the method of understatement to emphasise climacteric points.

The romantic approach tended to develop the fairy tale, or the imaginary and non-existent style of architecture, while in the third category, the impressionistic movement in modern art had been used successfully.

RECENTLY PUBLISHED

ACCOUNTING & COSTING SYSTEMS FOR SMALL & MEDIUM-SIZED BUILDERS

Prepared by:

The National Federation of Building Trades Employers
London, W.1

PRICE 5/- (by post 5/6)

Published by:

The Builder Ltd., Builder House, Catherine St., Aldwych, W.C.2

TEMPLE BAR 6251 (6 lines)

IN PARLIAMENT

The Housing Subsidy

ON February 19, MR. NORMAN SMITH asked the Minister of Housing and Local Government if he would make a statement about the housing subsidy.

MR. BLENKINSOP and MR. JAY asked questions on the same subject.

MR. MACMILLAN said that he hoped to meet the representatives of the local authorities on Thursday (February 21).

MR. NORMAN SMITH said the Minister should bear in mind that there was grave anxiety among local authorities lest any increase should not be sufficient to offset the extra cost of borrowing due to the increase in the rate of interest.

MR. MACMILLAN said that it would be sufficient for that purpose.

MR. BLENKINSOP: Are we to understand that the increase in the housing subsidy is guaranteed to be sufficient to cover the whole increased cost to local housing authorities of the new rate of interest?

MR. MACMILLAN: Yes.

MR. JAY: Can we be assured that that applies throughout the country.

MR. MACMILLAN: I have answered the question put to me. The answer is yes.

In reply to a later question, MR. MACMILLAN said that this question would be covered by a Bill. When he had finished discussing the many details with the local authorities a full announcement would be made, and the matter could then be debated when the Bill was introduced.

Supplies of Materials

On February 19, MR. DODDS asked the Minister of Housing and Local Government if he would make a statement on the prospects for increased supplies of timber, cement and bricks for housing in 1952.

MR. MACMILLAN said he was working closely with the Chancellor of the Duchy of Lancaster and the Minister of Works and had every reason to believe that these materials would be available for housing in increasing quantities.

The South Bank

On February 19, CAPTAIN BULLOCK asked the Minister of Works whether he would state what decisions had been taken on the future of the South Bank Festival of Britain site; and what would be the future of the Dome of Discovery.

MR. ECCLES said that the site of the South Bank Exhibition was owned by the London County Council to whom he was shortly handing over the entire downstream section below Hungerford Bridge and also the riverside walk. The L.C.C.'s plans for the future of these sections of the site were made public at their meeting on February 5 last. As regarded the section of the site upstream of Hungerford Bridge between the riverside walk and York-road, he was arranging for clearance of the exhibition structures (with the exception of the Station Gate) as quickly as possible. He had not yet made a final decision about the future of the Dome of Discovery.

Hong Kong Departmental Report

The annual departmental report for the financial year 1950-51 by the Director of Public Works, Hong Kong, has been published. The report contains information on projected development and pictures of recent reconstruction, which includes the re-erection of Queen's College.

TRADE NEWS

The Late Mr. A. G. Olby

Mr. Augustus George Olby, chairman of A. Olby and Son, Ltd., of Penge, wholesale builders' merchants and ironmongers, died on February 15 at the age of 73.

New Firestone Earthmover Tyre

An addition to the range of rubber tyres manufactured by the Firestone Tyre and Rubber Co., Ltd., of Brentford, has been developed for open-cast mining, quarrying and construction work. The Firestone rock grip excavator is at present available in the 14.00—24 20 ply rating.

A Plastics Exhibit

The stand of Warerite, Ltd., at the recent Catering Exhibition demonstrated the advantages and applications of Warerite laminated plastics in interior decoration. There were also a number of examples of their use for table-top and furniture surfaces of every description. In addition, wall-panelling and flush doors were displayed, together with a telephone booth built entirely of Warerite veneered board.

A Bituminous Aluminium Paint

A new product, Unitas bituminous aluminium paint, has recently been marketed by The United Paint Co., Ltd., 15, St. Helens-place., E.C.3. It can be applied to corrugated iron, bituminised sheeting, asbestos sheeting and other materials, as well as iron and steel. The paint is applied by normal methods and consists of aluminium paste in a high-grade medium based upon asphaltic bitumen.

Opportunities for Development

The Scottish Industrial Estates, Ltd., 3, Woodside-place, Glasgow, C.3, have issued a booklet to portray the opportunities for industrial development in Scotland and to record the work already accomplished in building new factories. It is intended for the information of manufacturers contemplating the establishment of plants in Scotland, and to show Scots men and women the new conditions in which work is being done in their country. This booklet contains photographs of various factories and industrial sites.

Two Developments in Vermiculite

MetaMica, Ltd., have recently developed two products which they claim to be of particular interest to the building industry. These two products are ceiling panels and steel-cladding sections, and are described in the company's bulletins Nos. 5 and 6. The ceiling panels are based on MetaMica brand exfoliated vermiculite and inorganic binders. They are specially reinforced, and provision is made for the attachment of fixing devices. They were originally designed for the Ministry of Education Architectural Department, who specified that they must be thermal insulating, fireproof, decorative, secret fixed and sound absorbent. It is claimed that the steel-cladding sections bring quite a new approach to fire protection and that their use avoids all the inconvenience of shuttering and pouring wet concrete.

PERSONAL COLUMN

THE BRITISH WOOD PRESERVING ASSOCIATION has appointed Mr. H. A. Cox, M.A., as technical director, and Mr. Wm. E. Bruce, M.A. (Cantab.), as secretary.

FORDHAM PRESSINGS, LTD., have appointed to their board of directors, Mr. Leonard William Moritz in place of the late Mr. Charles Henry Parker.

THE SCOTTISH BUILDER

Saltire Society Housing Award

TOO FEW LOCAL AUTHORITIES are entering schemes for the Saltire Society's Annual Housing Award given for the best designed local authority traditional housing scheme, according to a Department of Health for Scotland circular which has just been issued.

The Saltire award, says the circular, has the full support of the Secretary of State, who regards it as valuable recognition and encouragement of good planning and design in housing schemes. "The greater the response to a competition of this kind the more hope there is that it will encourage a higher standard of layout and design."

Normally two awards are made by the Society, one for cottages and one for flats. The awards take the form of a plaque on the building and a certificate to the local authority and the architect for the scheme.

Winners of the 1951 award were Linlithgow Town Council. The other post-war winners have been Aberdeen and Glasgow Corporations.

Cross-wall Construction

THE VIEW that if the system of cross-wall construction was used in Scottish housing the necessity to import Belgian bricks would cease, has been expressed by MR. JOHN LAWRENCE, chairman of the Scottish Housing Group and chairman of the Scottish Non-Traditional House Builders' Association.

In a statement to the Press, Mr. Lawrence said that it was the only practicable method he knew of saving millions of bricks per annum in house-building.

In the course of the years most of the level sites around the large cities had been used up and we were now being left with steep and very expensive building sites for development. To-day, on many sites, there were as many bricks under the ground-floor of a house as there were in the superstructure. If there was one system which would give a considerable saving in the under-building on such sites it was the cross-wall system.

It had been, added Mr. Lawrence, a mystery to many people to learn of the grave brick shortage in Scotland at a time when this country was manufacturing more bricks than ever before. The answer was that most of the bricks were going into under-building. So it was that builders were buying Belgian bricks at 270s. per 1,000 against home-produced bricks at 120s. per 1,000.

Another advocate of the cross-wall system is MR. SAM BUNTON, Glasgow architect, who has been associated with various developments to reduce housing costs. He believes that if Scotland's housing arrears are to be overtaken a completely new building policy is essential. The principal feature of that new policy should be the adoption of the cross-wall system of construction. By this means the costly load-bearing party wall, which at the moment merely separated tenants, was called upon to support the floors and roofs. The front and back walls became little more than screens sufficiently designed to render the house waterproof and with sufficient material to provide equal standards of heat insulation to a traditional brick wall.

He thought that just as brick replaced stone as the basic building material in 1921 they must now turn over to the scientific and economical employment of concrete as the main element in the facing of our national dwellings.

To be really effective in overall economy they must obviously narrow the frontages and increase the depth of dwellings. By that means they would increase the number of houses per foot of road frontage and the economy would be initially apparent in lowering the cost of road service charges per house.

Frontages of three- and four-apartment cottages could be compressed down to 14 ft. 6 in. and 17 ft. respectively and still yield the highest standards of planning and amenity. Within these dimensions it was possible to span floor and roof supports from mutual wall to mutual wall without resort to internal supports, so enabling the resultant spaces to be separated into apartments with light non-load-bearing partitions, from which there were many to choose.

A saving of around 6 ft. per house represented an immediate reduction of about £30 in service charges. In addition, the application of this principle to two- and five-storey houses increased the number of houses per site developed and was a step towards reducing the demands on highly valuable agricultural ground.

Cross-wall load bearing construction, therefore, opened up an entirely new approach to house production and was an essential pre-requisite of substantial cost reductions in the national housing programme.

*** This system was described in *The Builder* for January 18.—ED.

RUBBER FLOORING
RUBBER STAIR COVERINGS
AND
LATEX-CEMENT FLOORS
By
RUBBALUX COMPANY
LAYING SERVICE THROUGHOUT GREAT BRITAIN
Contractors to:
Air Ministry • British Railways
British European Airways
County and Local Councils
Regional Hospital Boards
8 HOLBEIN PLACE, LONDON, S.W.1.
Telephone: SLOANE 4065/4021
OUR NEW SUPER-HARD FLOORING TILES NOW SPECIFIED BY LEADING ARCHITECTS

NEW BUILDINGS

Airdrie.—Corporation is contemplating the reconstruction of the town hall buildings at an est. cost of £30,000 or a new town hall with police buildings est. to cost £50,000, whichever is approved by the Scottish Home Office when the plans are submitted.

Auchinleck.—Lanarkshire C.C. to have plans prepared for a housing scheme for agricultural workers. The architect is Samuel MacColl (F.), County-chbrs., Beckford-st., Hamilton.

Dunfermline.—T.C. seek loan sanction of £277,000 for erection of 178 houses at Aberdour-rd. site.

East Lothian.—C.C. to build six houses at Gullane; six at Macmerry; four at Ormiston; four at Elphinstone; six at Gifford; and six at Innerwick. Plans by County Architect, County Buildings, Haddington.

Edinburgh.—T.C. propose building a prestressed concrete road bridge at Hybot's Bank permanent housing area.

Glasgow.—Plans to be prepared for new public school to be erected at Nitshill-rd., for which the architect is John MacNab (F.), 129, Bath-st., Blythswood, Glasgow, W.C.2.

Glasgow.—Plans in hand for the reconstruction of the Sunshine Bakery for Scribbons-Kemp (Scot-

land), Ltd. The architects are Frank Burnet, Boston & Bell (F. & A.), 180, Hope-st., Blythswood, Glasgow, W.C.2.

Glasgow.—Corporation have approved a four-phase development, at Drumchapel, of a satellite town for 30,000, with 7,000 houses, baths, schools. Road and sewer work has begun on the first phase of the new area. Completion of the first part of the scheme has now been approved by the Corporation.

Glasgow.—The Dean of Guild has approved plans for erection of 1,456 houses at Ruchazie, near Gartcosh. The scheme will cost in the region of £2 million and will include churches, shopping centres and other community units at a later date.

Glenrothes.—Development Corporation to build second shopping centre at Woodside, comprising 12 shops, 13 houses and other buildings.

Holytown.—Plans to be prepared for new buildings for the Holytown Church of Scotland. The architects are John Scotland & Son (F.), 10, Bank-st., Graham-sq., Airdrie.

Inverness.—C.C. propose erection of 72 houses at Portree, Skye. Plans by County Architect, The Castle, Inverness.

Kilmarnock.—Plans to be prepared for alterations and additions, est. to cost £11,500, at the Wilson-st. Garage for the Dunlop Motor Co., Ltd. The architect is Harris Davies, 45, Portland-st., Kilmarnock.

Lanarkshire.—Plans to be prepared for the rebuilding of a warehouse at Bargeddie, for which the architect is John Simpson, 268, West George-st., Blythswood, Glasgow, W.C.2.

Lanarkshire.—Plans to be prepared for the Associated Cinemas, Ltd., Glasgow, for extensions to the George Cinema, Uddingston. The architects are Gavin Paterson & Son, 147, West Regent-st., Blythswood, Glasgow, W.C.2.

Perth.—Plans to be prepared for new electrical factory to be erected for Scott & Co., Ltd., at the South Inch-terr. The architects are Ross & Cruickshanks (F.), 22, George-st., Perth.

FUTURE CONSTRUCTION

PUBLIC APPOINTMENTS

Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.

CONTRACTS OPEN

For some contracts still open but not included in this list see previous issues. Those with an asterisk are advertised in this number. The dates at the heads of paragraphs are those for the submission of tenders; a dagger (†) denotes closing date for applications; the name and address at the end refer to the person from whom particulars may be obtained.

BUILDING

FEBRUARY 23.

***†Sedgley U.D.C.**—30 houses at Firs and Quarries housing site. S. Dep. £2 2s.

FEBRUARY 25.

***†Hornsey B.C.**—10 shops and 18 flats at Park-rd., N.8. G. A. Pentecost, B.E. & S. Tenders by March 24.

FEBRUARY 26.

***†Smethwick C.B.**—202 houses, Perry Hill. B.E. & S. Dep. £2 2s. Tenders by April 5.

***†Surrey C.C.**—Prim. sch., East Sheen, Barnes. County A., Kingston.

FEBRUARY 27.

***†Denbighshire E.C.**—Infants' sch., Abergele. G. D. Wiles, County A., Grove Park, Wrexham. Dep. £5

†Sutton-in-Ashfield.—Erection of 51 houses in four groups. Warner & Dean, housing achitects to the council, Mansfield-rd., Sutton-in-Ashfield. Dep. £2 2s. with each application.

FEBRUARY 28.

***†Birmingham T.C.**—216 dwellings at Aston Hall-rd., Aston. H. J. Manzoni, City E. & S.

***†Ffestiniog U.D.C.**—Factory, Haygarth Park, Blaenau Ffestiniog. H. Evans Jones, Clerk. Dep. £5 5s. Tenders by Mar. 24.

***†Surrey C.C.**—New prim. sch. at Coulsdon. County A., Kingston.

***†Surrey C.C.**—Sec. sch. at Horley. County A., Kingston.

***†Surrey C.C.**—Prim. sch. (Ham Petersham Russell) at Richmond. County A., Kingston.

***†Surrey C.C.**—Prim. sch. at Lingfield. County A., Kingston.

FEBRUARY 29.

***Beds C.C.**—Adaptation and extension of Rockwood, 76, New Bedford-rd., Luton. County A., Bedford.

***Newcastle Regional Hospital Board.**—Additional accommodation at Prudhoe and Monkton Hospital. E. B. Jenkins, sec. to the Bd., Dunira, Osborne-rd., Newcastle. 2.

***Ploughley R.D.C.**—Erection of six houses and two bungalows at Finmere. F. E. Openshaw (A.), Oxford Allied Architects, 65, St. Giles-st., Oxford.

***Ploughley R.D.C.**—Erection of six houses at Ardley. F. E. Openshaw (A.), Oxford Allied Architects, 65, St. Giles-st., Oxford. Dep. £2.

***†Wednesfield U.D.C.**—80 dwellings at Lichfield-rd. E. & S., 29, Bolton-rd. Dep. £3 3s.

MARCH 1.

***†Beaminster R.D.C.**—14 houses at Hogshill Mead site. H. A. Jarvis, S.

***†Brierley Hill U.D.C.**—104 dwellings at Swan-la. estate. J. R. Moore (A.), A. and Housing Director. Dep. £2 2s.

***†Essex C.C.**—Workshop block at N.E. Essex Technical College, Colchester. H. Conolly (F.), County A., Chelmsford.

MARCH 3.

***†Beds Standing Joint Comm.**—Police house, etc., on three sites. County A., Bedford.

†Blackrod U.D.C.—Erection of 30 houses at Blackrod. J. C. Prestwich & Sons, Bradshawgate-chbrs., Leigh. Dep. £2 2s.

Chertsey U.D.C.—Eight flats at Liberty-la. site, Addlestone. E. & S., Council Offices. Dep. £1 1s.

Mossley B.C.—Construction of 16 houses on the Micklehurst housing site. Howard & Benson (FF.), architects to the corporation, 88, Mossley-st., Manchester, 2. Dep. £2 2s.

***†Plymouth T.C.**—7 shops, 9 maisonettes and 9 garages, Ham-dr. H. J. W. Stirling (A.), City A., Seymour-rd. Dep. £3 3s.

***Weymouth and Melcombe Regis B.C.**—Two houses, junction of Camp-rd. and Lea-rd. B.E. & S., 6, Pulteney-bldgs. Dep. £2 2s.

MARCH 5.

***†Billericay U.D.C.**—54 houses at Vange housing estate. S. Dep. £2 2s.

Hemsworth R.D.C.—Erection of 84 houses in eight groups. E. & S., Brierley Hill, Brierley, nr. Barnsley. Dep. £2 2s.

MARCH 7.

Strood R.D.C.—16 houses at Swingate estate, Cliffe. E. & S., Council Offices, Frindsbury Hill. Dep. £5 5s.

MARCH 8.

***York T.C.**—42 houses on three sites. City A. Dep. £5 (each).

MARCH 10.

Bridgenorth B.C.—Conversion of Castle Hall into a Public Hall. B.S., College House, Bridgenorth. Dep. £2 2s.

Chester R.D.C.—Eight houses at Guilden Sutton. T. C. R. Eaton, 16, White Friars. Dep. £3 3s.

Colchester T.C.—62 dwellings at Shrub End site. B.E., 64, West Stockwell-st. Dep. £2 2s.

Hoole U.D.C.—Six houses at Hoole House estate. Robert Boot, 22, Newgate-st., Chester. Dep. £2 2s.

Keynsham U.D.C.—Erection of 48 houses on the Park-rd. estate. E. & S., Council Offices. Dep. £2 2s.

***†Portsmouth T.C.**—102 houses, Paulsgrove. City A. Dep. £3 3s.

Stoke Newington B.C.—Construction of an underground r.c. control centre. B.E. and S. Dep. £3 3s.

***†Tottenham B.C.**—Ten bungalows at Lydford-rd., N.15. B.E. & S. Dep. £2 2s.

NEW ANODISING
TREATMENT OF ALUMINIUM

TRANSLUCENT and PEARL FINISHES
are our exclusive treatments in addition to Sulphuric and Chromic Anodising.
MASS PRODUCTION CAPACITY

Special Service to BUILDERS of Electro-plating, Bronzing, Restoration of every kind of fitting.

JOHN WILKINS & Co LTD
231-243 ST. JOHN ST., CLERKENWELL
LONDON E.C.1.
Phone TERminus 2176-8

MARCH 11.

***Brighton C.B.**—Two police houses at Court Ord-rd., Rottingdean. B.E. & S., 26/30, King-rd. Dep. £2 2s.

South Shields T.C.—124 houses at Auckland-ave. and/or 30 houses at Marsden-rd. and Lincoln-rd. B.E., Town Hall. Dep. £2 2s.

Southwell R.D.C.—Ten bungalows and two blocks of flats at Lower Kirkington-rd. site. S. Cooper, 8, Westgate. Dep. £2 2s.

MARCH 12.

Tavistock U.D.C.—22 houses at Greenlands estate. Rossington and Fogden, architects, National Provincial Bank-chbrs. Dep. £2 2s.

MARCH 13.

***Reigate B.C.**—63 houses in four groups, Rushetts Farm estate. B.E. & S. Dep. £2 2s. (each group).

***Yeovil B.C.**—34 houses at Larkhill estate. Petter, Warren and Roydon Cooper (FF.), The Old Oxford Inn, West Hendford. Dep. £2 2s.

MARCH 14.

***Essex C.C.**—Two cowhouses and two sheds with incidental works at Roakes Farm, Berden. County Land Agent and Valuer, 69, Duke-st., Chelmsford.

MARCH 15.

***Berks C.C.**—10 houses and 6 garages, Langley Hill-cl., Tilehurst. County A., Wilton-hse., Parkside-rd., Reading. Dep. £2 2s.

***Stevenage Development Corporation.**—To tender for building contracts. Chief A., & Planner, Astonhse., nr. Stevenage, Herts.

***Ware U.D.C.**—Conveniences and site works at King George's Field. W. J. Davis, E. & S. Dep. £2 2s.

MARCH 17.

Bideford T.C.—Ten houses at Pynes-la. estate. B.S., Municipal-bldgs. Dep. £2 2s.

***Brentford and Chiswick B.C.**—14 dwellings at Ealing-rd., Brentford. B.E. & S. Dep. £5 5s.

Carlton U.D.C.—52 dwellings at Thoresby-ave. and Cavendish-rd. housing sites. E. & S., Council-hse., Burton-rd. Dep. £2 2s.

Carmarthenshire C.C.—Two police houses at Trostre-rd., Llanelly. County A., County Hall, Carmarthen. Dep. £2 2s.

***East Riding C.C.**—Police garage at Bridlington. County A., Beverley. Dep. £2 2s.

***East Riding C.C.**—Canteen and kitchen, Moorfield County prim. sch., Bridlington. County A., Beverley. Dep. £2 2s.

Shoreham-by-Sea U.D.C.—48 houses at Hammy-la. housing estate. R. Browne, 4, East-st. Dep. £3 3s.

MARCH 18.

***East Riding C.C.**—Sec. sch. at Cottingham. County A., Beverley.

MARCH 19.

***Chester R.D.C.**—11 houses at Dodleston. T. C. R. Eaton (A.), 16, White Friars. Dep. £3 3s.

MARCH 20.

***East Riding C.C.**—Sec. sch. at Harland-way, Cottingham. County A., Beverley. Dep. £2 2s.

MARCH 21.

***Barnes B.C.**—Three houses at Avenue-gdns., East Sheen, S.W.14. W. R. Shepherd, B.E. & S.

MARCH 22.

Bentley-with-Arksey U.D.C.—26 houses and other incidental work. R. N. Penlington, Council Offices, Cooke-st. Dep. £2 2s.

MARCH 24.

***Beds E.C.**—Classroom and alterations and additions, sanitary block, Toddington Controlled V.P. sch. County A., Bedford.

***Dartford B.C.**—Lock-up shops with 16 flats, Temple Hill. B.S., Barclay's Bank-chbrs., High-st. Dep. £2 2s.

***Newport B.C.**—Conveniences and baths at Holyrood-st. B.E., 39, Quay-st. Dep. £2 2s.

***Walton and Weybridge U.D.C.**—Conveniences at Walton-la., Weybridge. E. & S.

MARCH 29.

***Stretford B.C.**—22 flats at Moss Park, junction Moss Park-rd. and Barton-rd. A. H. Perry, B.S. Dep. £2 2s

APRIL 2.

Australia: State Electricity Commission of Victoria.—Driving and testing of reinforced concrete pile foundations for boiler and turbine houses at Yallourn "D" Power Station. Agent-General for Victoria, London. Dep. £50.

NO DATE.

Cardiff.—Erection of nurses' home at Newport-rd. for Cardiff Royal Infirmary, for United Cardiff Hospitals. H. W. Fletcher, 21, Dumfries-pl. Dep. £3 3s.

Falmouth T.C.—Two houses and bungalow at three sites. P. E. Stephens, Midland Bank-chbrs.

***Grantham B.C.**—32 houses. B.E. & S. Dep. £2 2s.

Stone R.D.C.—Eight houses at Brown's Bridge, Slindon, Eccleshall. Hollins, Jones and Oldacre, architects, Lloyds Bank-chbrs., Newcastle. Dep. £2.

***Surbiton R.C.**—Prim. sch., Tolworth. W. C. Mangan, architect, 2, Ribblesdale-pl., Preston.

PAINTING, ELECTRIC LIGHTING, MATERIALS, ETC.

MARCH 3.

Rowley Regis B.C.—T.C. (Materials.)

MARCH 5.

Ashford U.D.C.—S. (Materials.)

MARCH 8.

Cowes U.D.C.—S. (Materials.)
Thurrock U.D.C.—External painting houses. C. S. H. Hawkes, E. & S. Dep. £1 1s.
Todmorden B.C.—B.E. (Materials.)

MARCH 10

Burgess Hill U.D.C.—E. & S. (Materials.)
***Southport C.B.**—Grates and surrounds and ironmongery for 94 houses, Heathfield-rd. estate. Boro' A. and T.P. Officer, Pavilion-bldgs., Lord-st. Dep. £1 1s. (each specification).
Sutton-in-Ashfield U.D.C.—E. & S. (Materials.)

ROADS, SEWERAGE AND WATER WORKS

MARCH 1.

***Northallerton U.D.C.**—200 yd. of new road, etc., Linden-rd., Valley Road estate. Clerk.

MARCH 3.

Durham T.C.—Supply and laying of hot rolled asphalt. County E. & S., 43, Old Elvet, Durham.

MARCH 5.

Bradford T.C.—General excavation, sewers and carriageways on the Thorpe Edge estate—Section "B"—Contract No. 1. City E. & S., Town Hall. Dep. £2 2s.

MARCH 6.

Canterbury T.C.—Surface dressing of carriageway within the city. C.E., Municipal-bldgs.

MARCH 8.

Stretford B.C.—Extension of roadway and paths at Cemetery, Lime-rd. B.E. & S., Town Hall. Dep. £2.

MARCH 10.

Norwich T.C.—Construction of roads and sewers on the Eaton-rd.—Ipswich-rd. estate. City E., City Hall, Norwich. Dep. £2 2s.

MARCH 12.

Godalming B.C.—Construction of roads and sewers at Binscombe Farm housing estate. B.S., Branksome, Filmer-gr. Dep. £2 2s.

MARCH 17.

Cheltenham B.C.—Reconstruction of Alstone-la. B.S., Municipal Offices, Cheltenham. Dep. £3 3s.
Norwich T.C.—Construction of roads and sewers on the Harford industrial estate. City E., City Hall, Norwich. Dep. £2 2s.

MARCH 24.

Beaminster R.D.C.—Laying of spun-iron water mains and construction of pump house at Corscombe. Lemon and Blizard, Castle-la., Southampton. Dep. £2 2s.

NO DATE.

***Anglesey.**—Water supply scheme. W. H. Cooke & Arkwright, chartered land agents, 148, High-st., Bangor. Dep. £1 1s.

GENERAL BUILDING WORK

(LONDON)

Finsbury.—FLATS.—J. Emberton, Chantry-hse., Buckingham Palace-rd., S.W.1, has prepared plans for 180 flats at Old-st., E.C.1.

Hampstead.—HOUSING SCHEME.—B.C. Housing Committee have appointed Richard Nickson, F.R.I.B.A., 34, Welbeck-st., W.1, architect for revised Broadhurst Gardens housing scheme.

Hampstead.—APPOINTMENT.—A. E. Thornton-Firkin & Partners, 17, Fitzhardinge-st., W.1, have been appointed quantity surveyors for the Dennington Park-rd. scheme by B.C. Housing Committee.

Hampstead.—APPOINTMENT.—B.C. Housing Committee have appointed Edwin C. Pinks & Partners, Parliament Mansions, Victoria-st., S.W.1, quantity surveyors for Fellows-rd. scheme.

Islington.—APPOINTMENT.—O. E. Parratt, F.R.I.C.S., has been recommended for appointment by B.C. Housing Com. as quantity surveyor for proposed housing scheme at King Henry's Walk.

Islington.—HOUSING SCHEME.—B.C. Housing Committee have recommended appointment of E. C. P. Monson, F/A.R.I.B.A., 120, Moorgate, E.C.2. for proposed housing scheme at King Henry's Walk.

Lewisham West.—PRIMARY SCHOOL.—T. F. Ford, F.R.I.B.A., 189, Victoria-st., S.W.1, has prepared plans for rebuilding Christ Church School.

Lewisham West.—SECONDARY SCHOOL.—Hobday & Maynard, F/F.R.I.B.A., 19, Beckenham-gr., Shortlands, Bromley, Kent, has prepared plans for Catford County Secondary Boys' School for L.C.C. Education Committee.

St. Marylebone.—PRIMARY SCHOOL.—Plans by Louis de Soissons & Partners, A.R.A., 3, Park Square-mews, N.W.1, for Barrow Hill-rd. County primary school have been approved by L.C.C. Education Committee.

St. Marylebone.—DEVELOPMENT.—B.C. Housing Committee have appointed Culpin & Son, F/F.R.I.B.A., 3, Southampton-pl., W.C.1, architects for proposed development at Abercorn-pl.

South Norwood.—LABORATORIES, ETC.—C. T. Ayerst, 38, High-st., Croydon, is the architect for proposed laboratories and classrooms at Lady Edridge Grammar School, Clifton-rd.

Southwark.—WAR DAMAGE REPAIRS.—Preliminary plans by George Fairweather, F.R.I.B.A., 28-30, Wigmore-st., W.1, for war damage repairs and improvements at Robert Browning County Primary School have received L.C.C. Education Committee approval.

Stepney.—FLATS AND MAISONETTES.—L.C.C. Housing Committee have approved scheme for development of Calcutta-st. site, comprising 85 flats and 56 maisonettes. Plans by principal architect under the direction of the Director of Housing and Valuer.

Twickenham.—CREMATORIUM.—J. L. Denman, 27, Queen's-rd., Brighton, has prepared plans for crematorium at Hounslow-rd. to cost £50,000.

Wandsworth.—DWELLINGS.—Plans prepared by principal architect under the direction of the Director of Housing and Valuer for development of Clapham Park estate extension, comprising 69 flats, 12 maisonettes and 15 houses, have received L.C.C. Housing Committee approval.

(PROVINCIAL)

Ashby.—R.D.C. architect has prepared plans for 50 houses at Ravenslea estate.

Ashton-under-Lyne.—Lancs C.C. propose improvements of two blocks at Lakeside Institution, at est. cost of £48,500.

Ballymena.—P. B. Gregory, 25, Gresham-st., Belfast, has prepared plans for sec. sch., for St. Louis Convent.

Barrow-in-Furness.—B.C. approved extensions to library and museum, at est. cost of £20,000.

Birmingham.—T.C. to adapt Wychbury House, Hagley-rd., Pedmore, as residential nursery, at est. cost of £11,500.

Brixworth.—R.D.C. propose six houses at Arthingworth, four at Brington, 12 at Gealsborough, six at Walgrove and 12 at Welford.

Bromsgrove.—Aerlec (Aluminium), Ltd., propose expenditure of £25,000 for reinstatement of factory at Stoke Heath.

Builth Wells.—T. Edmund Rees, The Grove, Merthyr Tydfil, has prepared plans for Catholic Church.

Caernarvonshire.—E.C. propose three classrooms, gymnasium, etc., at Botwronog sch. and extensions at Caernarvon Gram., Capelulo and Pwllheli Gram. —E.C. propose new comprehensive sch. at Brynrefail; new sec. sch. at Conway; and new schs. at Gyffin, Glanadda and Morfa Nevin.

Carlisle.—T.C. to erect 80 flats to plans by L. J. A. Stow, City E.

Carlisle.—T.C. propose erection of crematorium.

Chester.—T.C. to negotiate with Thos. Warrington & Co., Ltd., Ellesmere Port, for further 69 houses at Blacon.

Chesterfield.—T.C. preparing sketch plans for improvement of Market Hall.

Chester-le-Street.—Durham Coal Board, Stockton-rd., Sunderland, to erect coke-oven plant at Lambton "D" pit alongside existing works.

Consett.—U.D.C. architect, J. J. Eltringham, Derwent-st., Blackhill, has been asked to prepare plans for shops and flats at Richard Murray Hospital estate.

Crediton.—Beech and E. Curmow Cooke, 15, Dix's Field, Exeter, have prepared plans for 24 houses at Spruce Park.

Cumberland.—E.C. propose science laboratory and art room at Richmond sec. sch., Whitehaven, at est. cost of £10,000.

Deal.—B.C. to build 36 flats at Orchard-ave. estate.

Derbys.—C.C. 1952/3 schools programme to include extensions to Heanor Tech. Col.; first instalment of Clowne Col. of Further Education; and inf. schs. at Chuddesden and Kirk Hallam.

The CERTAIN Cure for DAMP WALLS

Penetrex

THE COLOURLESS Waterproofing Liquid

One Coat of Penetrex is more effective than two coats of any other method.

Penetrex is Colourless and Transparent, it leaves no film or deposit.

Penetrex is equally successful on Brick, Stone, Concrete and Stucco surfaces.

Supplied in all sizes from Quart Tins to 5-gallon Drums from your Builders' Merchant or write for the name of your nearest stockist to the Sole Manufacturers—

F. A. WINTERBURN LTD.
HOLBORN ST., LEEDS, 6 Tel. 25692

Dudley.—B.C. to prepare quantities for Kates Hill housing scheme. Quantity surveyors are Rutter & Lowe, 70/76, Alcester-rd. South, Birmingham.

Durham.—Cty. A., Court-la., has prepared plans for tech. colleges at Durham City and Easington and inf. sch. at Peterlee.

Durham.—C.C. to build two police houses with office at Cellar Hill, Newbottle. Plans by Cty. A., Court-la., Durham.

Eston.—U.D.C. to build 134 houses at Redcar-rd. East estate.

Golborne.—U.D.C. approved layout of 230 houses at Derby-rd. estate; and propose eight bungalows at Lowton-rd. and 16 at Glazebury.

Golborne.—Cty. A., Preston, has prepared plans for old people's home at Derby-rd.

Hastings.—Benjamin Stevens & Partners, 49, Havelock-rd., have prepared plans for out-patients' dept., at Royal East Sussex Hospital.

Heckmondwike.—U.D.C. seek loan of £24,445 for further 18 houses at Dare-la. estate.

Henley.—R.D.C. to erect 26 houses on five sites.

Hepton.—R.D.C. seek approval for layout of houses at Boston Hill.

Hook Norton.—Cty. A., 3, Becket-st., Oxford, has prepared plans for fire station for Oxon C.C.

Ilkley.—Cty. A., Bishopgarth, Westfield-rd., Wakefield, has prepared plans for three-storey teaching block and hall at College for Housecraft.

Leeds.—Gribbon & Foggitt, 3, Park-pl., have prepared plans for proposed erection of C.P. sch.

Leigh.—Lancs C.C. propose improvements at Atherleigh Grange, at est. cost of £38,600.

Liverpool.—J. C. Prestwich & Son, Bradshawgate-chbrs., Leigh, Lancs, have prepared plans for R.C. jun. sch. at Speke.

Liverpool.—Superfine Furniture, Ltd., propose erection of works extensions at Hillfoot rd., Speke.

Llanidloes.—John Mills & Co. (Llanidloes), Ltd., propose works extensions to railway foundry.

Lleyn.—R.D.C. propose 22 houses at Morfa Nevin.

Luton.—Lye & Sons, Ltd., propose rebuilding part of factory at New Bedford-rd.

Manchester.—Hardman & Holden, Ltd., Canal-st., propose works extensions at Colliery-st.

Mansfield Woodhouse.—N. J. Muschamp & Co. to build works extensions at Grove-st.

Mickleover.—E. F. Wilson, architect to Sheffield Regional Hospital Board, Old Fulwood-rd., Sheffield, has prepared plans for central main kitchen; garage and repair depot; and accommodation for staff at Pastures Hospital.

Morpeth.—R.D.C. S., J. R. Miles, has prepared layout plan for 28 houses at Lynemouth.

Newcastle-on-Tyne.—City A., G. Kenyon, 18, Cloth-market, Newcastle, has prepared plans for alterations at Ponteland Cottage Homes to form nursery unit.

Northampton.—Oxford Regional Hospital Board approved plans for two villas for women patients at St. Crispin's Hospital, at est. cost of £106,885.

Northumberland.—C.C. to convert Bedlington Colliery sch. into branch library. Cty. A. is C. C. Brown, County Hall, Newcastle-on-Tyne.

Norwich.—J. Culyer & Son, Ltd., propose extensions to factory at Duke-st.

Nottingham.—T.C. propose temporary health centre at Clifton; provision of girls' hostel, £10,000; and seek loan of £106,885 for improvements to Nottingham and District Technical College.

Ormskirk.—T.C. propose further 24 houses at Richmond-ave. estate, Burscough.

Portsmouth.—T.C. to erect 63 flats at King's-rd., Southsea.

Portsmouth.—McMurdo Instrument Co., Ltd., 145, London-rd., Kingston-on-Thames, propose to build factory at Fratton Industrial estate.

Reading.—Cty. A., Parkside-rd., Reading, has prepared plans for new offices at Abbey-st. and Abbots-walk, for Berkshire C.C.

Reigate.—Cty. A., County Hall, Kingston-on-Thames, has prepared plans for first section of Gatton sch., to cost £33,866.

Rochdale.—E.C. propose erection of Kirkholt mod. sec. sch. in 1952 programme.

Salford.—Brennan's Cinemas, Ltd., Deansgate Cinema, Manchester, propose rebuilding Palace Cinema at Cross-la.

Salford.—T.C. to build 33 flats at Devonshire-rd.; additional classrooms at Stott-la., Pendleton, for E.C. Architects are Halliday & Agate, 14, John Dalton-st., Manchester; Spiritualist National Union propose Church at Langworthy-rd.; Herbert Morris, Ltd., propose warehouse and offices at 337/341, Chapel-st.; G.E.C., Ltd., propose warehouse at 37/39, Crescent, Salford; and W. Hodgson & Sons, Ltd., 136/138, Chapel-st., propose internal alterations. Architects are Leach, Rhodes & Walker, 90, Deansgate, Manchester.

Sedgley.—U.D.C. to approve layout of Firs Quarries housing site and Cinder-rd. site. Architect is A. Young, 3, Newhall-st., Birmingham.

Seisdon.—R.D.C. propose 120 dwellings at White Hill and Enville-rd. sites, Kinver.

Slough.—T.C. to build block of flats at Priory estate, Burnham.

Smethwick.—T.C. received layout approval for 216 houses at Brandhall-rd. and Bleakhouse-rd.

Southport.—T.C. seek loan of £88,422 for 60 houses at Derbyshire Hill site, Southport-st.

South Shields.—S. W. Milburn & Partners, 9, Esplanade, Sunderland, have prepared plans for proposed drill hall at Highfield-rd. F. W. Newby, 41, Harton-gr., South Shields, has prepared plans for 24 houses at Mortimer-rd., for Henderson Bros., Smith-st., Tyne Dock, South Shields. L. H. Fewster & Partners, 22, Conduit-st., W.1, are the architects for block of shops at corner of King-st. and Market-pl., for Ravenseft Properties, Ltd.

Stockport.—B.C. to negotiate with J. & J. Oakes, Ltd., for 28 houses; H. Owen & Sons, Ltd., for 33 houses; J. Foulkes & Sons, Ltd., for 38 houses; and J. Wimpey & Co., Ltd., for 58 houses. All at Brinnington estate.—B.C. propose aged persons' home at Brinnington neighbourhood unit.

Stratford.—Planning permission has been granted to Metropolitan-Vickers Electric Co., Ltd., for tank shop extension and offices at Westinghouse-rd.

Stretford.—North-Western Gas Board have received planning permission for proposed extension to railway sidings at Thomas-st.

Stretford.—The British Red Cross Society have received planning permission for erection of building as Red Cross Training and Social Headquarters, Elm-dr.

Stretford.—B.C. propose nine houses at St. Hilda's Church site.

Sunderland.—Boro' A., Grange-hse., Stockton-rd., has prepared plans for jun. sch. and kitchen and dining-room at Grindon.

Sutton Coldfield.—B.C. to prepare plans for 11 bungalows off Warden-ave.

Thorney.—U.D.C. A. has approved plans for 20 houses at Park Farm estate.

Todmorden.—Cooper & Groom, 37, King-st. West, Manchester, have prepared plans for reconstruction of weaving shed at Vale Mill, for H. Walton & Sons, Ltd.

Tottington.—U.D.C. propose further 36 houses at Leemans Hill estate.

Wallasey.—B.C. propose new clinic at New-st., at est. cost of £7,500.

Wallsend.—Boro' S., Town Hall, has prepared plans for multi-storeyed flats at Willington Quay.

Walsall.—M. E. Habershon, Boro' S., Council-hse., has prepared plans for development of new estate at Gipsy-la. to provide for 1,300 houses.

Warrington.—R.D.C. to erect further 30 houses for miners.

Wellington.—R.D.C. propose six houses at Lawley; 10 at Ellerdine; 10 at Crudgington; and 16 at Charlton.

West Bromwich.—J. A. Harper & Son, Union-chbrs., 63, Temple-row, Birmingham, have prepared plans for extensions to factory at Guns-la., for S. E. Wakelein & Co., Ltd.

West Lancs.—R.D.C. seek loans of £37,348 for 10 houses and 20 flats at Lamshear-la., Lydiate; and £22,664 for 16 dwellings at Waddicar-la., Melling.

Wharfedale.—R.D.C. received layout approval for six houses at Warren-la., Arthington.

Whitby.—North Riding Cty. A., County Offices, Northallerton, has prepared plans for conversion of Princess Royal Hotel into county home.

Whitley Bay.—Site plan has been approved for proposed fire station behind Whitley-rd., for Northumberland C.C.

Wigan.—Grenfell Baines & Group, Guildhall-st., Preston, have prepared plans for additional factory buildings, for Turner's Asbestos Co., Ltd.

Wirksworth.—U.D.C. to erect 12 houses at Steeple Grange

Wolverhampton.—Staffs C.C. to purchase The Viewlands, Wightwick, for hostel for aged.

TENDERS

* Denotes *accepted*.
† Denotes *provisionally accepted*.
‡ Denotes *recommended for acceptance*.
§ Denotes *accepted subject to modification*.
¶ Denotes *accepted by H.M. Government Departments*.

Accrington.—Houses for T.C.:—222 at Within-gr.: *John Laing & Son, Ltd., Carlisle, £328,269; 48 flats at Dunnyshop: *Gregory Flats, Ltd., Worthing, £59,046; and six shops and flats at Fern Gore: *Leonard Frankland, Ltd., £17,083.

Ashton-in-Makerfield.—58 houses at Landgate-la. site, for U.D.C.: *Direct Labour, £79,200.

Barrow-in-Furness.—125 houses at third section of Newbarns (South) housing site, for B.C.: *Direct Labour, £170,243.

Bedford.—24 houses at Mile-rd. estate, for B.C. *Gambriel and Sugars, £34,812.

Bedford.—24 flats at Mile-rd. estate. *William Boshby, Ltd., £26,420.

Beeston.—Extensions and alterations to ambulance station, for C.C.: *A. H. Taylor (Nottingham), Ltd., 151, Attenborough-la., Attenborough, £6,341.

Birkenhead.—26 houses at Prenton Dell estate, for B.C.: *Dell Investments, Ltd., Russell-rd., £34,925.

Blackpool.—Four houses at Kentmere-dr., Mereside; *T. Bannister & Sons, 176, Queen's-dr., £6,343; and four aged persons' dwellings at Rossett-av.: *Brook Construction Co. (Blackpool), Ltd., £4,981.

Brighton.—59 houses at Hollingdean estate, for B.C.: *Knight Bros. (Brighton), Ltd., £66,950.

Brighton.—41 houses at Hollingdean estate, for B.C.: *Rice & Son, Ltd., £52,485.

Brighton.—49 houses at Hollingdean estate, for B.C.: *T. J. Braybon & Son, Ltd., £54,230.

Bury.—82 houses at Topping Fold No. 1 site, for B.C.: *A. E. Davis, Ltd., Farnworth, £106,000.

Cardiganshire.—Erection of prim. sch.: *Gee, Walker & Slater, Ltd., Uttoxeter Old-rd., Derby.

Carlton.—Conversion of Gedling Manor as home for aged: *Mapperley Building Co., Ltd., 668, Woodborough-rd., Nottingham, £14,285.

Cheadle.—Six houses and six aged persons' bungalows at Weston Coyney site, for R.D.C.: *J. A. Bailey, Tape-st., Cheadle, £14,111.

Coventry.—Erection of jun. dept. at Limbrick Wood prim. sch. for E.C.: *Gilbert-Ash, Ltd., 2, Stanhope-gate, W.1, £23,754.

Darlington.—Erection of houses at High Conisscliffe and Great Stainton, for R.D.C.: *R. T. Raisborough, Darlington, £14,420.

Dewsbury.—232 houses at Wakefield-rd. estate, for B.C.: *Harlow & Milner, Ltd., Warren Yard, Warren Gate, Wakefield, £322,946.

Dudley.—Construction of bus centres at Fisher-st., and Birmingham-st., for B.C.: *H. Rogers, Ltd., Midland Bank-chbrs., New-rd., Willenhall, £13,135.

Durham.—50 houses at Framwellgate Moor, for T.C.: *T. Armstrong, Robson-st., Newcastle-on-Tyne (subject to Ministry approval).

Durham.—Building work in connection with remodelling of playgrounds at Greenside cty. sch., for C.C.: *Haverys, 38, The Side, Newcastle-on-Tyne, £7,098.

East Grinstead.—28 houses, 20 flats and two bungalows at Blackwell Farm housing estate, for U.D.C.: *S. D. Chapman, Ltd., £65,332.

East Ham.—Erection of sec. sch. for girls: *B. Sunley & Sons, Ltd., 34, St. James's-st., S.W.1, £264,982.

Gateshead.—Erection of new offices at Shipcote site, for Boro' Treasurer's dept. H. J. Cook, Chief A., Municipal-bldgs., Swinburne-st., Gateshead: *Cussins (Contractors), Ltd., The Drive, Gosforth, Northumberland, £99,225 (subject to Ministry approval).

Glasgow.—Underbuilding works for the Balarnock-cres. temporary school at Crantill for the Corporation. John MacNab (F.), 129, Bath-st., Blythswood, Glasgow, W.C. *Thomas Henderson & Sons (Glasgow), Ltd., Glasgow.

Glasgow.—New senior secondary school at Westland-dr. for the Corporation. John MacNab (F.), 129, Bath-st., Blythswood, Glasgow, W.C.2. Excavation, brick, building and allied works, *Hugh Bradley, Ltd., Govan, Glasgow, £230,127. Plumbing, sanitary engineering and allied works, *Robert Renfrew & Sons, Ltd., Glasgow. £26,820. Steel windows and casements and allied works. *The Crittal Manufacturing Co., Ltd., Glasgow, £21,755. Joinery, carpentry and allied works, *Hugh Bradley, Ltd., Glasgow, £37,648.

Gosport.—Eight houses at Rowner-cl., for B.C. *J. R. Basford, £10,486.

Gosport.—20 flats at Wilmott-la., for B.C. *Hawkins Bros., Ltd., £21,738.

Gosport.—Four houses at Rowner-cl., for B.C. *Dugan and Sons, £5,435.

Halesowen.—30 houses at Howley Grange estate, for B.C. Plans by J. C. T. Cole, L.R.I.B.A., Central-bldgs., Long-la., Blackheath, nr. Birmingham, and quantities by L. Dallow, F.R.I.C.S.: *Samuel Parkes (Builders), Ltd., Powke-la., Blackheath, Birmingham (20 houses); and *F. Tildesley & Sons, Ltd., Olive-la., Blackheath (10 houses).

Hereford.—Construction of new factory buildings for Painter Bros., Ltd.: *Wilson Lovatt & Sons, Ltd., 16, Grosvenor-cres., S.W.1.

Hollingbourne.—Houses for R.D.C.:—10 at Chart Sutton with ancillary work: *J. W. Fernall & Son, £14,951; 32 at Lenham: *J. W. Fernall & Son, £41,784.

Lanarkshire.—New scheme of houses for the C.C. Samuel MacColl (A.), County-chbrs., Beckford-st., Hamilton. Excavation, brick, building and allied works, *Andrew Wright & Sons (Builders), Ltd., Blantyre, £23,369. Joinery, carpentry and allied works, *MacQueen and MacBeen, Ltd., Bellshill, £17,905. Plumbing, sanitary engineering and allied works, *T. M. Simpson, Blantyre, £8,776.

Liverpool.—Additional classrooms at Rudston-rd. cty. prim. sch., for E.C.: *Marshall Bros. (Builders), Ltd., 3-5, Salop-st., Liverpool, £12,917.

Liverpool.—672 dwellings at Kirkby estate, for T.C.: *Unit Construction Co., Ltd., £1,004,003.

¶London (Air Ministry).—Contracts to the value of £500 or over placed by Directorate of Contracts for week ended February 16:—

Building work: Y. J. Lovell & Son, Ltd., Gerrards Cross, Bucks; O. Marx & Son, Ltd., Folkestone; G. E. Wallis & Sons, Ltd., London, W.C.2; Lewis and Watters, Ltd., Leamington Spa; and Geo. Wimpey & Co., Ltd., London, W.6. *General maintenance work*: G. H. Miller & Co., Ltd., London, E.7; R. A. Buckle, Ltd., Prestatyn, Flintshire; and Brown Fraser & Co., Ltd., North Berwick, East Lothian.

¶London (Admiralty).—Particulars of contracts placed by Civil Engineer-in-Chief's Dept., Admiralty:—

Sheerness: Asphalt roofs, General Asphalte Co., Ltd., Hope House, 41-49, Great Peter-st., S.W.1.

L.C.C.—Construction of five blocks of flats and other work at Argyle estate:—

Harry Neal, Ltd., St. Marylebone	£171,996
J. Garrett & Son, Ltd., Wandsworth	171,155
A. T. Rowley (London), Ltd., Tottenham	170,640
E. Clarke & Sons, Ltd., Addlestone	169,920
E. H. Smith (Croydon), Ltd., Croydon	169,867
Rowley Bros., Ltd., Tottenham	167,748
Kirk & Kirk, Ltd., Wandsworth	166,963
Henry Boot & Sons, Ltd., Kensington	165,673
Thomas & Edge, Ltd., Woolwich	158,654
Rush & Tompkins, Ltd., Westminster	157,871
*Tersons, Ltd., Finsbury	155,634

The architect's comparable estimate is £159,349.

Construction of 25 flats and other work at Lant-st. site, Southwark:

Tersons, Ltd., Finsbury	£77,672
Thomas & Edge, Ltd., Woolwich	77,419
Allen Fairhead & Sons, Ltd., Enfield	77,344
Speirs, Ltd., Westminster	76,867
A. E. Symes, Ltd., Stratford	76,521
Prestige & Co., Ltd., Westminster	76,345
Hall Beddall & Co., Ltd., Lambeth	76,205
E. H. Smith (Croydon), Ltd., Croydon	75,860
A. T. Rowley (London), Ltd., Tottenham	75,120
Percy Bilton, Ltd., Westminster	74,921
*F. Troy & Co., Ltd., Southwark	73,894

The comparable estimate of the appointed architects, Riches & Blythin, is £67,275.

Construction of foundations and other work at Kings Park Comprehensive High Sch., Woolwich West:

M. J. Gleeson (Contractors), Ltd., Cheam	£59,534
Patman & Fotheringham, Ltd., Islington	59,311
Stewart & Partners, Ltd., St. Marylebone	58,174
Lavender McMillan, Ltd., Worcester Park	57,903
A. T. Rowley (London), Ltd., Tottenham	56,914
Gilbert-Ash, Ltd., Westminster	56,597
Gough, Cooper & Co., Ltd., Wilmington	55,993
C. P. Roberts & Co., Ltd., Holborn	55,390
Rush & Tompkins, Ltd., Westminster	54,760
J. Garrett & Son, Ltd., Wandsworth	54,190
Thomas & Edge, Ltd., Woolwich	53,516
*E. H. Smith (Croydon), Ltd., Croydon	52,172

The architect's comparable estimate is £51,745.

War damage repairs at Samuel Pepys County Sec. Sch., Deptford:

A. J. Dunning & Co. (Weyhill), Ltd., Woolwich	£45,880
W. J. Marston & Son, Ltd., Fulham	40,785
J. Garrett & Son, Ltd., Wandsworth	39,897
Thomas & Edge, Ltd., Woolwich	38,430
Bernard Sunley & Sons, Ltd., Westminster	37,695
E. H. Smith (Croydon), Ltd., Croydon	37,042
Whyatt (Builders), Ltd., Wandsworth	36,917
Foster & Dicksee, Ltd., St. Marylebone	35,975
F. & H. F. Higgs, Ltd., Lambeth	35,683
*J. & C. Bowyer, Ltd., Croydon	34,973

The architect's comparable estimate is £33,424.

Erection of superstructure at Woodberry Down Comprehensive High Sch., Stoke Newington:

The Croft Granite, Brick & Concrete Co., Ltd., nr. Leicester	£40,437
Stent Pre-Cast Concrete, Ltd., Dagenham	35,948
Dow-Mac (Products), Ltd., Stamford, Lincolnshire	34,079
Liverpool Artificial Stone Co., Ltd., Westminster	32,273
*The Atlas Stone Co., Ltd., Westminster	23,336

The architect's comparable estimate is £24,612

War damage repairs and improvements at Plumcroft County Prim. Sch., Woolwich West:

Herbert Richardson & Sons, Ltd., Crayford	£25,150
William Mills & Sons, Ltd., Greenwich	24,948
Messrs. Hill & Gurr, Bromley	23,984
Whyatt (Builders), Ltd., Wandsworth	23,883
Field-Davis, Ltd., Barking	23,837
Truett & Steel, Ltd., Thornton Heath	23,720
A. J. Dunning & Sons (Weyhill), Ltd., Woolwich	23,665
Halse & Sons, Ltd., Woolwich	23,338
Thomas & Edge, Ltd., Woolwich	22,707
F. Troy & Co., Ltd., Southwark	22,412
Frederick Smith & Co. (Builders), Ltd., Camberwell	22,334
Greenaway & Son, Ltd., Camberwell	22,234
*J. & C. Bowyer, Ltd., Croydon	21,595

The comparable estimate of the architect is £21,859.

FOR
PLATE & SHEET
GLASS
SUPPLIES
IT MUST BE
AYGEE
for
IMMEDIATE SERVICE
Phone
AYGEE LTD., LONDON, S.E.1
WATerloo 6314
(10 lines)

¶**London (M.O.W.).**—Contracts placed by M.O.W. during week ended February 9:—
Worksop: Miners' Hostel, Gateford-rd., Worksop, exterior and interior painting, Harris and Mitchell, 22, Claypole-rd., Nottingham.

¶**London (War Dept.).**—Works contracts placed by W.D. during week ended February 9:—
Leicestershire: Heating and ventilating, William Freer, Ltd., Leicester. *Devonshire*: Miscellaneous, Devon and Cornwall Estates, Ltd., Truro. *Norfolk*: Roadwork, F. B. Thackray & Co., Ltd., Huntingdon. *Surrey*: Concrete structure, G. R. Wilkins & Co., Ltd., Richmond, Surrey.

Maidstone.—40 Easiform houses, Shepway estate, for B.C.: *Gough Cooper & Co., Ltd., £59,440.

Manchester.—Erection of St. Anthony's R.C. sch.: *Moston Brick & Building Co., Ltd., Manchester.

Manchester.—Erection of engineering factory, for T. C. Thompson, Ltd.: *D. Walton, Ltd., Salford.

Middlesbrough.—90 houses at Berwick Hills, for T.C. Plans by J. A. Kenyon, M.I.C.E., M.I.Mun.E., A.M.T.P.I., Boro' E. & S.: *C. W. Athey, 15, Windsor-rd., Middlesbrough, £45,769 (34 houses); and *T. A. Greenwell & Sons, 145, Albert-rd., Middlesbrough, £45,440 (34 houses).

Northfleet.—32 houses at Coldharbour-rd.: *North Kent Construction Co., Ltd., White Hart-rd., Orpington.

Northumberland.—Erection of child welfare centre at Morpeth, for C.C. Plans by C. C. Brown, Cty. A., County Hall, Newcastle: *J. Wilson, Ltd., Oldgate, Morpeth, £10,589.

Old Fletton.—Further 20 houses at Southfields estate, for U.D.C.: *Southfields Estates, Ltd., Old Fletton.

Poole.—90 houses for T.C.: *Rawlings (Builders), Ltd., Harbour-rd., Hamworthy.

Rawtenstall.—25 houses at Lomas-la. estate and 18 at Staghills estate, for B.C.: *Rossendale & District Building Trade Employers' Association, £58,329.

Southampton.—Erection of offices for Halifax Building Society, Ltd.: *R. H. Hammond, Ltd., Winchester-rd.

Sunderland.—Erection of new Broadway cty. prim. jun. sch., for E.C. Boro' A. is H. C. Bishop, Grange-hse., Stockton-rd., Sunderland: *A. V. Clerey & Son, Frederick-st., Sunderland, £70,567 (subject to Ministry approval).

Tynemouth.—24 flats at Redburn View site, for T.C.: *J. H. Rogers, Regent-ter., North Shields.

Ulverston.—60 houses at Croftlands Park, for U.D.C.: *Baker & Foster, Upper Brook-st., £86,000.

Wallasey.—12 houses for B.C.: *J. L. Leech & Co., 433, Leasowe-rd., £20,927.

West Lancs.—12 bungalows and four flats at Molyneux-rd., Aughton: *J. & R. Woods (Builders), Ltd., £16,440; and 16 houses at Cousins-la., Rufford: *Ernest Abram & Co., Ltd., £20,856.

Whitley Bay.—20 houses at Cauldwell-av., for U.D.C.: *W. A. Cruickshanks, 105, Closefield-gr., Whitley Bay.

FEDERATION OF MASTER BUILDERS

UNITE FOR STRENGTH

FEDERATION OF MASTER BUILDERS

CONTINUES TO EXPAND AND IS THE LARGEST NATIONAL ORGANISATION IN THE INDUSTRY

MEMBERSHIP
10,750

ENROL NOW

SUBSCRIPTION £5.5.0 p.a.
London Region—37 Areas
And over 100 Provincial Branches

Phone or write:
SECRETARY,
26 GT. ORMOND ST., HOLBORN, W.C.1
Tel.: CHAncery 7583 (4 lines)
Telegrams: "EFEMBE, Holb, London"

The Address of your Branch Secretary will be forwarded.

BROADS WHITE GLAZED
CHANNELS for
LABORATORIES, SCHOOLS, KITCHENS, HOSPITALS, etc., etc.
BROAD & CO. LTD., PADDINGTON, W.2

STEEL-CRETE
SUPER-HARD DUSTLESS SURFACES
HAVE BANISHED ALL TROUBLES WITH OLD OR NEW
FLOORS
inspect one that has withstood
HEAVY TRUCKING FOR 30 YEARS
and consult
STEEL-CRETE LTD.
Savoy House, 115/116, Strand, London, W.C.2
Tel.: TEMple Bar 5621

THE ESSEX STEEL SCAFFOLDING Co LTD
SALES, HIRE
ERECTION
CRADLES
9A HIGH BEECH ROAD
LOUGHTON ESSEX
TEL: LOUGHTON 5022

Boyle's "Air Pump" Patent Ventilator
OVER TWO MILLION IN USE
ROBERT BOYLE & SON
VENTILATING ENGINEERS
98, HERRIES STREET, KILBURN LANE, W.10
Tel.: LADbroke 2879

WOOD BLOCK FLOORS
STEVENS & ADAMS LTD.
Victoria Works,
Point Pleasant, Wandsworth, S.W.18

W & M NEGUS LTD
Building Contractors
Station Works, King James St., Southwark, S.E.1
Telephone:— Waterloo 5474 (3 lines)

GALBRAITH
BROTHERS LIMITED
BUILDERS
CONTRACTORS
& ENGINEERS
Registered Office:
61 BARTHOLOMEW CLOSE
E.C.1
MONarch 7597-8
Works:
CRAYFORD BRIDGE
KENT
Bexley Heath 5651-4